

U.S. CUSTOMER SERVICE MARKET ANALYSIS

1990 - 1995

INPUT

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**Federal Information Systems and Services
Program (FISSP)**

***U.S. Customer Service Market Analysis,
1990-1995***

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Abstract

The purpose of the report U.S. Customer Service Market Analysis, 1990-1995 is to size the current market for customer services in the U.S. and provide growth expectations over a five-year forecast period. The report segments the U.S. customer service market into two major categories: manufacturer-supplied service and independent maintenance organization (IMO) service. These categories are further broken down by product groupings: large systems (supercomputers, mainframes, and minisupercomputers), midrange computers (superminicomputers and traditional minicomputers), and PC/workstations (business-use microcomputers, supermicrocomputers, and workstations).

The report also discusses key issues and trends that will affect the computer service market growth over the next five years.

The report contains 48 pages, including 39 exhibits.



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Table of Contents

I	Introduction	1
	A. Scope	1
	B. General Methodology	2
	C. Research Forecast Methodology	3
II	Executive Overview	5
	A. 1989 Market Overview	5
	B. 1989-1995 Growth	6
	1. Market Growth	6
	2. Factors Affecting Growth	7
	C. Leading U.S. Service Providers	8
	D. Systems Availability Trends, 1983-1990	11
	E. New Opportunities	12
III	Service Market Size and Forecast, 1990-1995	15
	A. U.S. Customer Service Market Size and Forecast	15
	1. Forecast Factors	18
	2. Independent Maintenance Organizations	19
	B. Competitive Environment	22
	1. Service Providers	22
	2. Major Acquisition Activity	27
	C. Western European Customer Service Market	28
	1. Market Forecast, 1990-1995	28
	2. Long-Term Trends	30
	D. New Service Opportunities	30

Table of Contents (Continued)

IV	Customer Service Market Issues and Trends	33
	A. IBM Strategy and Actions	33
	B. Single-Source Hardware/Software Service	34
	C. Manufacturer-Dealer Support Programs	35
	D. Maintenance/Support Insurance	36
	E. Remote Monitoring and Call Home Features	37
	F. User Service Requirements	37
	G. Impact of the Recession	41
	H. Expansion into Nontraditional Markets	44
<hr/>		
V	Recommendations and Conclusions	47
	A. The Competitive Environment	47
	B. IBM in the Service Market	47
	C. Customer Service as a Business	48

Exhibits

I	-1 1990 INPUT Research Base	2
II	-1 1989 U.S. Customer Service Market by Product Type	5
	-2 U.S. Customer Service Market Growth by Product Type, 1990-1995	6
	-3 U.S. Independent Maintenance Market, 1990-1995	7
	-4 Customer Service Revenue Growth: Opposing Factors	8
	-5 Leading U.S. Service Providers, 1989	9
	-6 Leading Large Systems Service Vendors	9
	-7 Leading Midrange Service Vendors	10
	-8 Leading PC/Workstation Service Vendors	10
	-9 Combined Market Share of Top Three Service Vendors by Market	11
	-10 System Availability Trends, 1983-1990	12
	-11 Nontraditional Service Growth	12
	-12 Professional Services Opportunities for Customer Service Organizations: Summary	13
III	-1 Changes in Product Market Share, 1989-1995	15
	-2 Computer Services Market Forecast, 1990-1995	17
	-3 Factors Increasing Customer Service Revenue	18
	-4 Independent Maintenance Organization Forecast, 1990-1995	19
	-5 Independent Maintenance Organization Forecast, 1990-1995	21
	-6 On-Site and Depot Markets, 1989 versus 1990	21
	-7 Top Computer Service Vendors	23
	-8 Top Large Systems Computer Service Vendors	24
	-9 Top Midrange Systems Computer Service Vendors	25
	-10 Top PC/Workstation Systems Computer Service Vendors	26
	-11 Top Independent Maintenance Organizations	27

Exhibits (Continued)

-12	W. European Customer Services Market Growth, 1990-1995	29
-13	W. European Customer Services Market Growth by Vendor Type, 1990-1995	29
-14	Nontraditional Service Growth	31

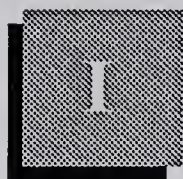
IV

-1	User Interest in One-Vendor Hardware/Software Support	34
-2	Vendor Preference for One-Vendor Service/Support	35
-3	Large Systems System Availability, 1983-1990	38
-4	Midrange Systems System Availability, 1983-1989	38
-5	Large System User Satisfaction with Key Support Services	39
-6	Midrange System User Satisfaction with Key Support Services	40
-7	User-Service Vendor Communications	41
-8	Impact of the Recession on Vendors and IMOs	41
-9	Budgetary Measures in Relation to Economic Downturn	42
-10	What Information Service is Insulated Wholly or Partially from a Recession?	43
-11	New Product Introduction	44
-12	Professional Services Opportunities for Customer Service Organizations: Summary	45



Introduction





Introduction

U.S. Customer Service Market Analysis, 1990-1995 is one of the deliverables for the 1990 Customer Services Program—International. The report provides a current market size and five-year forecast for the U.S. customer service market, which is segmented into three major product categories: large, midrange, and PC/workstation. The report also presents the market size and forecast for service provided by independent maintenance organizations, as well as an analysis of service issues, trends, and new developments that will affect the short-term and long-term growth of the market.

The market size and revenue growth forecast for Western Europe is also presented, with some of the major factors affecting growth in the European market.

A

Scope

The purpose of this report is to size the current market for customer services in the U.S., provide growth expectations over a five-year forecast period, and present the major issues and trends affecting the market. The report breaks down the market into the two major service sources—manufacturer-supplied service and independent maintenance organization (IMO) service. These service submarkets are further broken into product groupings: large systems (supercomputers, mainframes, and minisupercomputers), midrange computers (superminicomputers and traditional minicomputers), and PCs/workstations (business-use microcomputers, supermicrocomputers, and workstations).

Chapter II provides an Executive Overview of the main points of the report in exhibit format, with accompanying text.

Chapter III presents detailed market size and five-year forecast information for the total U.S., as well as forecasts for the manufacturer-provided and IMO-provided service by products serviced. Rankings of the top large-systems, midrange systems, PC/workstation systems, and IMO

vendors are provided in this chapter. The Western European customer service forecast is also provided, along with major vendor information.

Chapter IV examines issues and trends that have affected, or will affect, service delivery and growth. Pricing trends, manufacturer versus IMO competition, service enhancements, innovative service alternatives, and user requirements are explored.

Chapter V concludes the report with management focus items to improve and enhance service delivery and to uncover future growth markets.

An appendix at the end of the report provides a reconciliation of the 1989 and 1990 service forecast and a separate forecast of the software services market.

B

General Methodology

This report was prepared as a culmination of INPUT’s 1990 Customer Services Program. During 1990, INPUT surveyed over 250 users of computer equipment in the U.S. The user breakdown is shown by product in Exhibit I-1. The research measured requirements for service and support, and satisfaction with service and support currently received. An examination of attitudes toward alternative services, including service provided by independent maintenance companies, was also conducted.

EXHIBIT I-1

1990 INPUT Research Base	
User Research	Respondents
Large Systems	97
Midrange Systems	109
PC/Workstations	53
IMO Users	35
Vendor Research	Respondents
Large Systems	5
Midrange Systems	7
PC/Workstations	5
IMO Vendors	30

The results of this research are presented in the following INPUT reports: *Large-System User Requirements*, *Midrange System User Requirements*, *PC/Workstation User Requirements*, *Network Service Opportunities*, and *Independent Maintenance Service Opportunities*.

In addition, INPUT surveyed over fifty leading vendors of customer services regarding their current service operations—including revenue totals, employee totals, and services provided. The results of the IMO vendor research can be found in the Appendix of the *Independent Maintenance Service Opportunities* report. Results of research of other vendors was used to substantiate the issues and trends presented in the other reports.

This extensive primary research effort has provided INPUT with significant insight into the customer services market. In addition, INPUT tracks hundreds of manufacturer-based and independent maintenance organizations, and collects annual reports, Form 10Ks, press releases, marketing literature, and news articles from leading service journals. This information is contained in vendor files at INPUT's Information Center and is used, as necessary, to supplement primary research conducted during the past year.

The vendor research accounted for over 75% of the U.S. manufacturer-supplied and IMO-supplied service revenue for the 1989 base year. Interview results, as well as quarterly revenue information, allowed INPUT to forecast the 1990 market revenues and future service growth expectations presented in this report.

C

Research Forecast Methodology

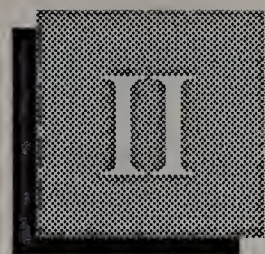
In 1990, INPUT accumulated information on the leading manufacturer-based and independent maintenance service organizations. This information was gathered from direct surveys, annual reports, Form 10Ks, and various other sources. When necessary, INPUT made estimates of privately held service organizations that declined to reveal their service revenues. Only U.S. service revenue information was considered to focus the forecast on the U.S. market.

This information became the base for the 1989 service market, which provided each forecast with a base year of reported service revenue. The 1990 information, which forms the starting point of the five-year forecast, was derived from interpretation of public company annual and quarterly reports, 10Ks, 10Qs, and survey information regarding growth expectations.

INPUT uses its proprietary forecast model to examine past service revenue growth trends as affected by product, service delivery, pricing, and user trends. In addition, assumptions regarding future product population growth and releases, technological trends, pricing trends, and other factors are formulated and applied to growth rates.

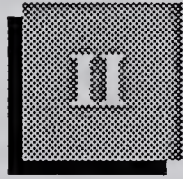
The resulting forecast for U.S. customer service is then broken down by product serviced (large systems, midrange systems, and PC/workstations). First, companies that address a single product market are placed in that service market. Companies that address more than one product market are assessed and divided into their component markets. Separate estimates were made for ancillary/other services and, where necessary for comparability, software support. Software support is not included in customer services forecasts.

Total independent maintenance revenues are forecasted using IMO vendor revenue information estimated in the same manner as above. Product breakdowns are estimated from user research reflecting the use of and willingness to use IMO service, as well as assumptions based on anticipated manufacturer service pricing and policy changes.



Executive Overview





Executive Overview

This chapter contains the summary information and key findings of this report. Each finding is presented in an exhibit with accompanying text.

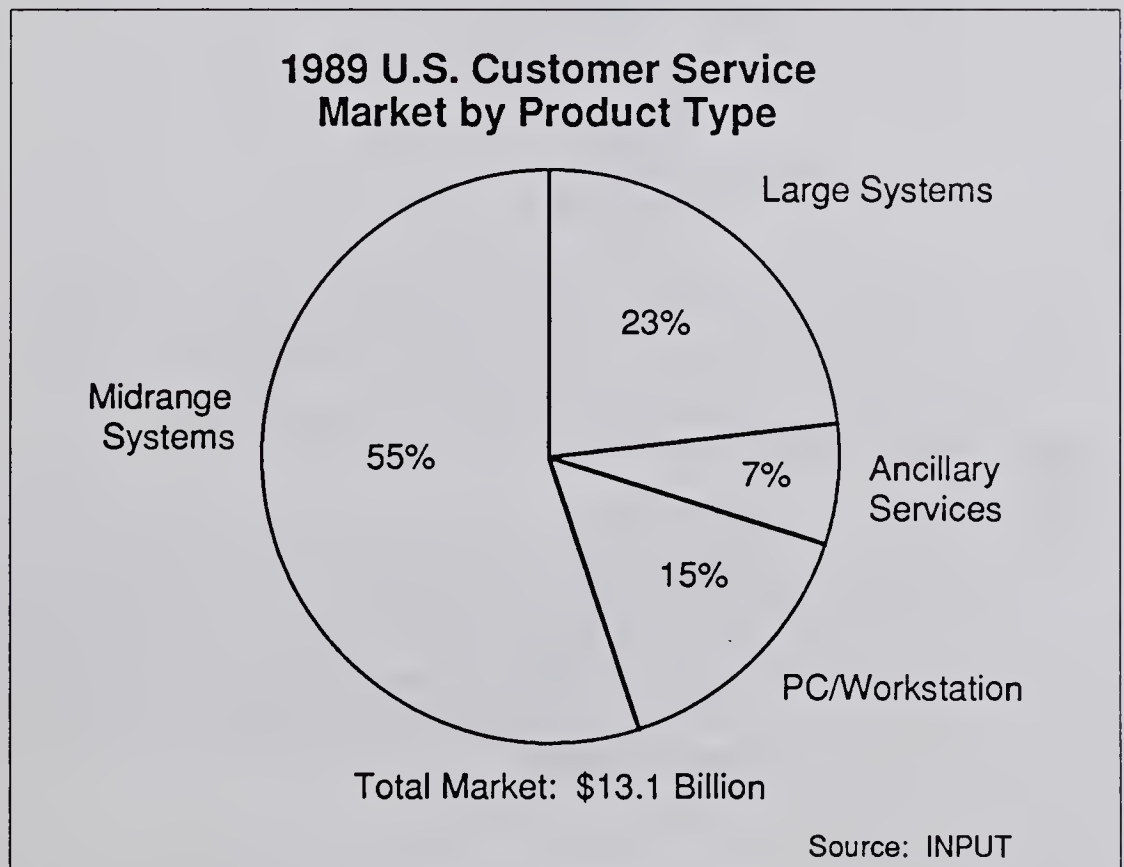
The U.S. customer service market is undergoing a period of variable growth expectations, for reasons analyzed in this report. The purpose of this study is to analyze market directions and growth opportunities available to manufacturer and independent maintenance (IMO) service organizations.

A

1989 Market Overview

The U.S. customer service market totalled \$13.1 billion in 1989. Midrange systems accounted for over half the market, as shown in Exhibit II-1.

EXHIBIT II-1



B

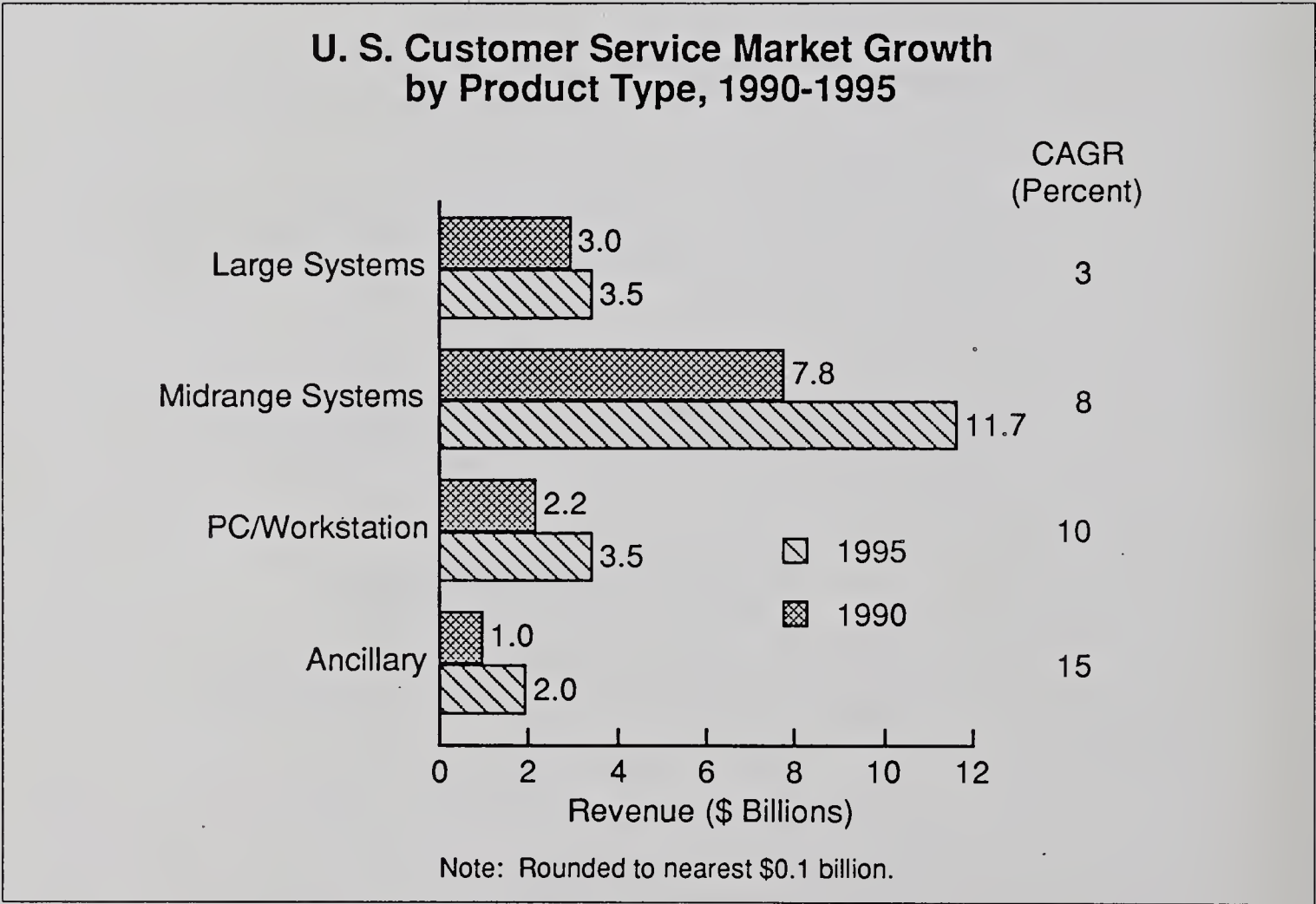
1989-1995 Growth

1. Market Growth

The market is expected to reach \$20.8 billion in 1995, at a compound annual growth rate of 8%. This growth rate is roughly the same as previously forecasted, and is due largely to the increased pressures that systems manufacturers are finding themselves under to produce higher margins across all lines of business.

Growth rates are expected to vary among types of products (see Exhibit II-2), from a low of 3% for large systems to a high of 15% (from a low base) for ancillary services.

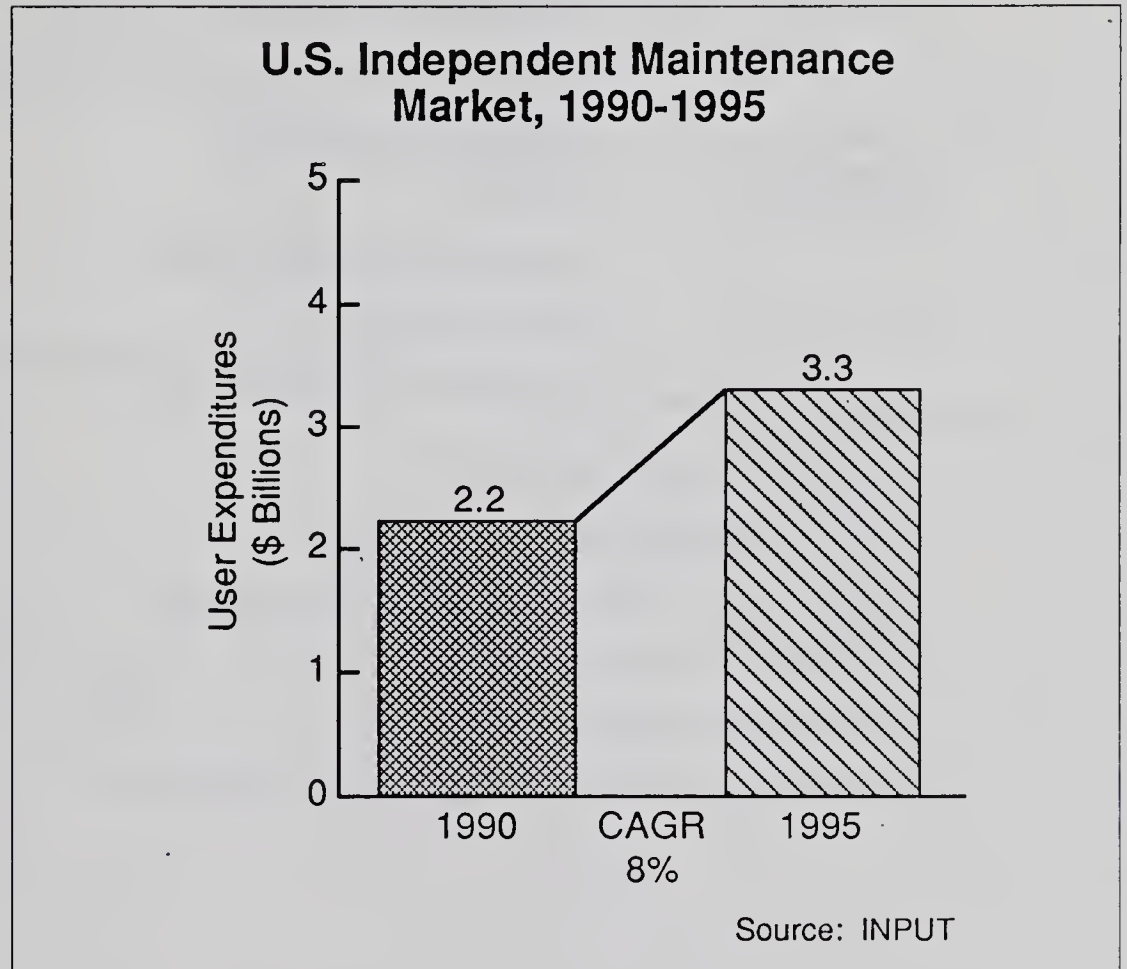
EXHIBIT II-2



Micro/workstation service will continue to grow somewhat faster than the rest of the service market, and will increase its share in the overall service market. This market will benefit from continued product sales growth, as technological advances improve both product performance and serviceability—currently reflected in IBM’s midrange system, the AS/400, which offers excellent price/performance and advanced remote support facilities.

The independent maintenance segment (figures for which are included in the total market figures in Exhibits II-1 and II-2) is projected to grow at a rate of 8% over the next five years, as shown in Exhibit II-3. This is in line with recent growth, although it is down significantly from the mid-1980s.

EXHIBIT II-3

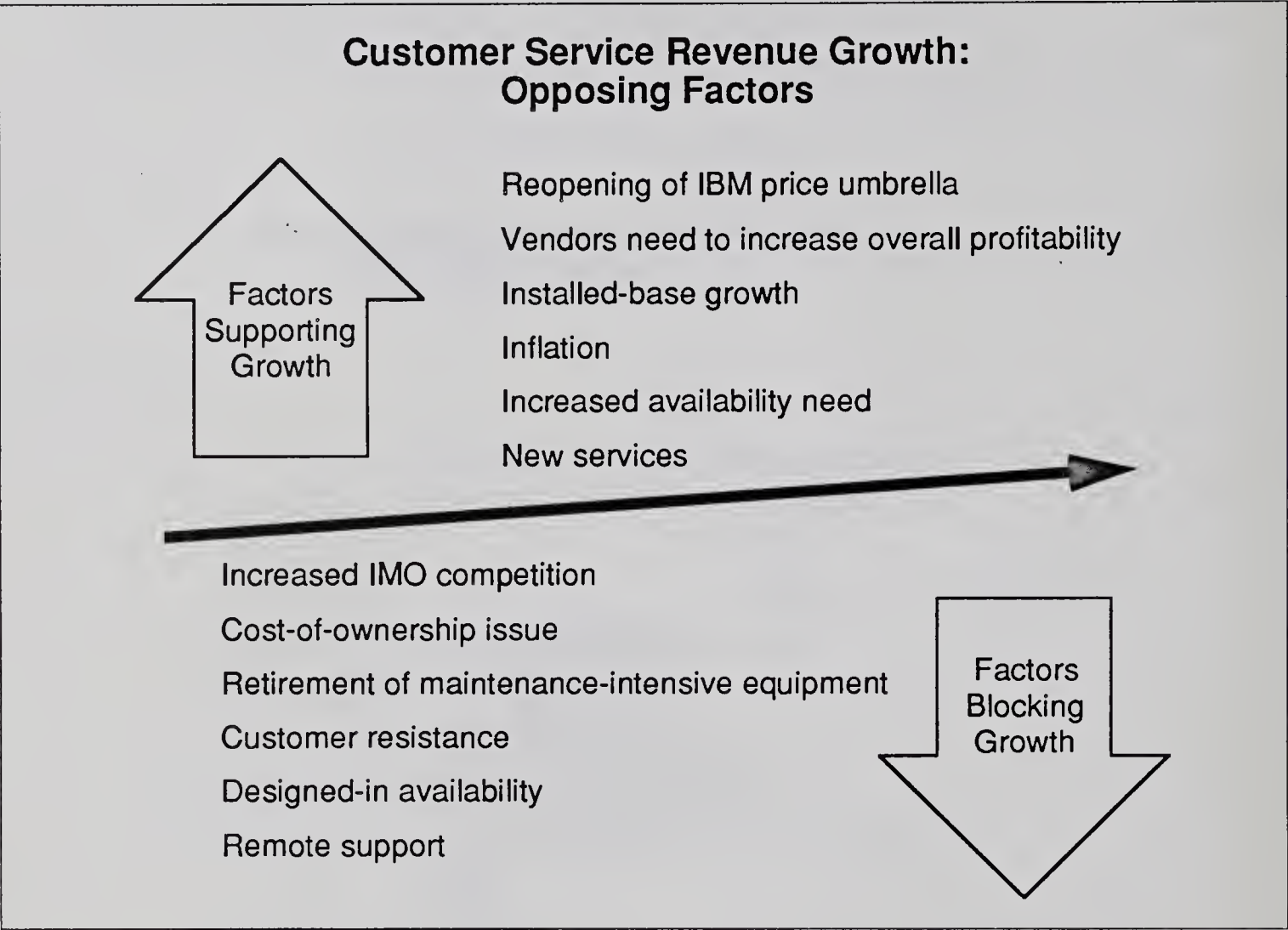


2. Factors Affecting Growth

The factors affecting growth in customer services continue to be finely balanced, as illustrated in Exhibit II-4. For the last several years, market growth was held back by IBM's actions, which were aimed at reducing the cost of ownership of IBM systems. Now that IBM has begun to increase prices, IBM's price umbrella has begun to shelter other vendors again.

On the other hand, revenue growth will be under constant pressure over the next five years as vendors—especially IMOs—try to retain their positions. Customers are increasingly placing pressure on vendors by issuing RFPs and asking for special quotes.

EXHIBIT II-4

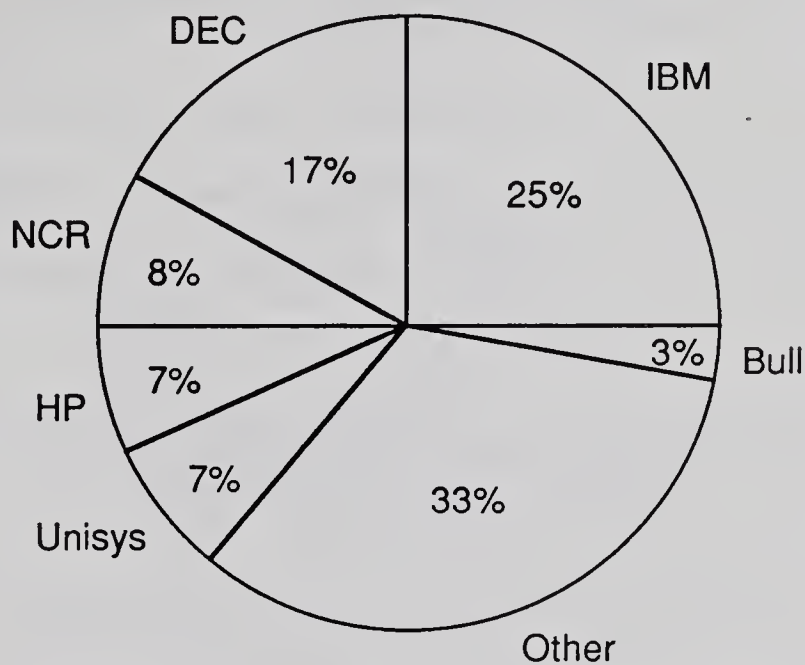


C

Leading U.S. Service Providers

IBM and DEC accounted for over 40% of the customer service market in 1989, as shown in Exhibit II-5. Not surprisingly, IBM dominates the large-scale market even more (see Exhibit II-6), and DEC is the largest player in the midrange market, with over one-quarter of the market (see Exhibit II-7). The PC/workstation market is much more fragmented, with no single vendor having more than one-sixth of the total market as shown in Exhibit II-8.

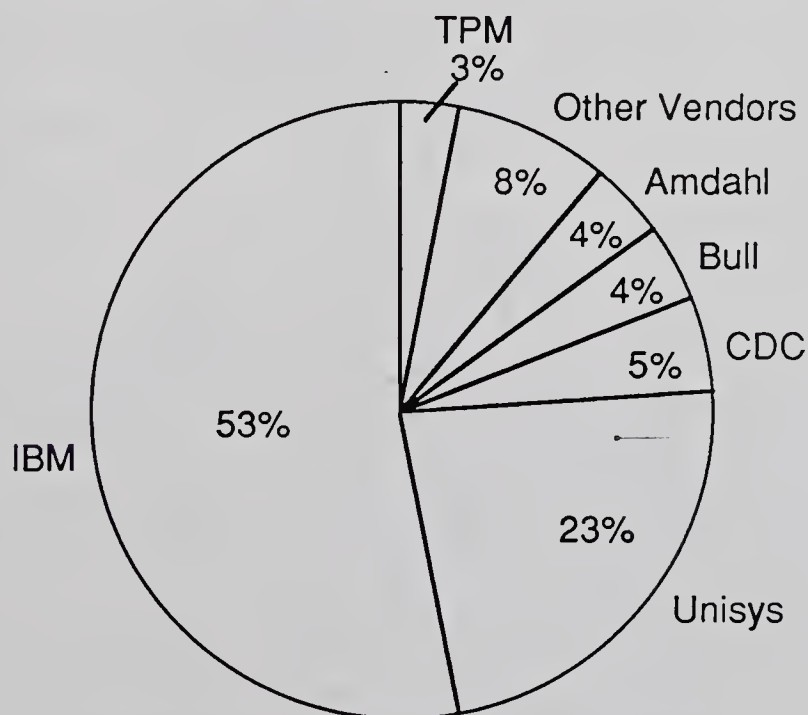
EXHIBIT II-5

Leading U.S. Service Providers, 1989

Total Market: \$13.1 Billion

Source: INPUT

EXHIBIT II-6

Leading Large Systems Service Vendors

Total Market (1989): \$3.0 Billion

Source: INPUT

EXHIBIT II-7

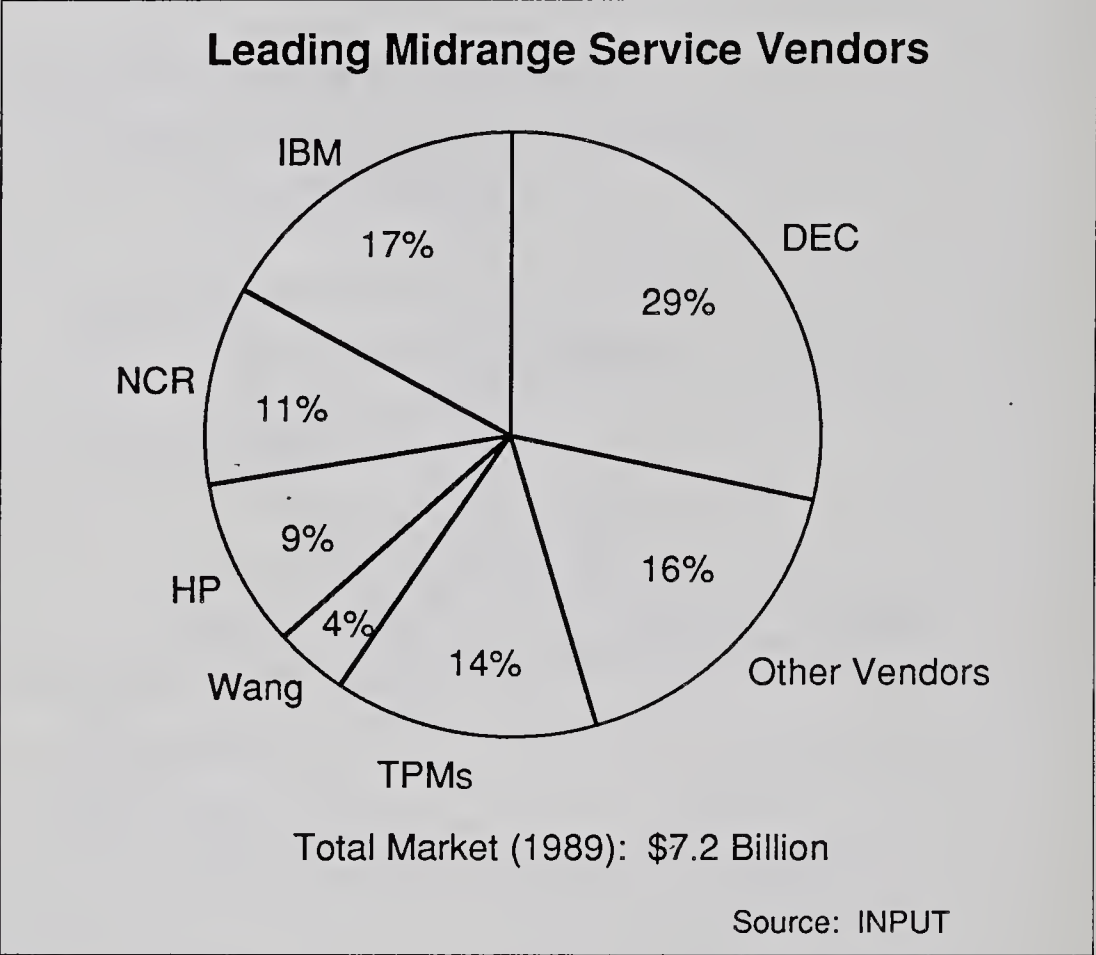
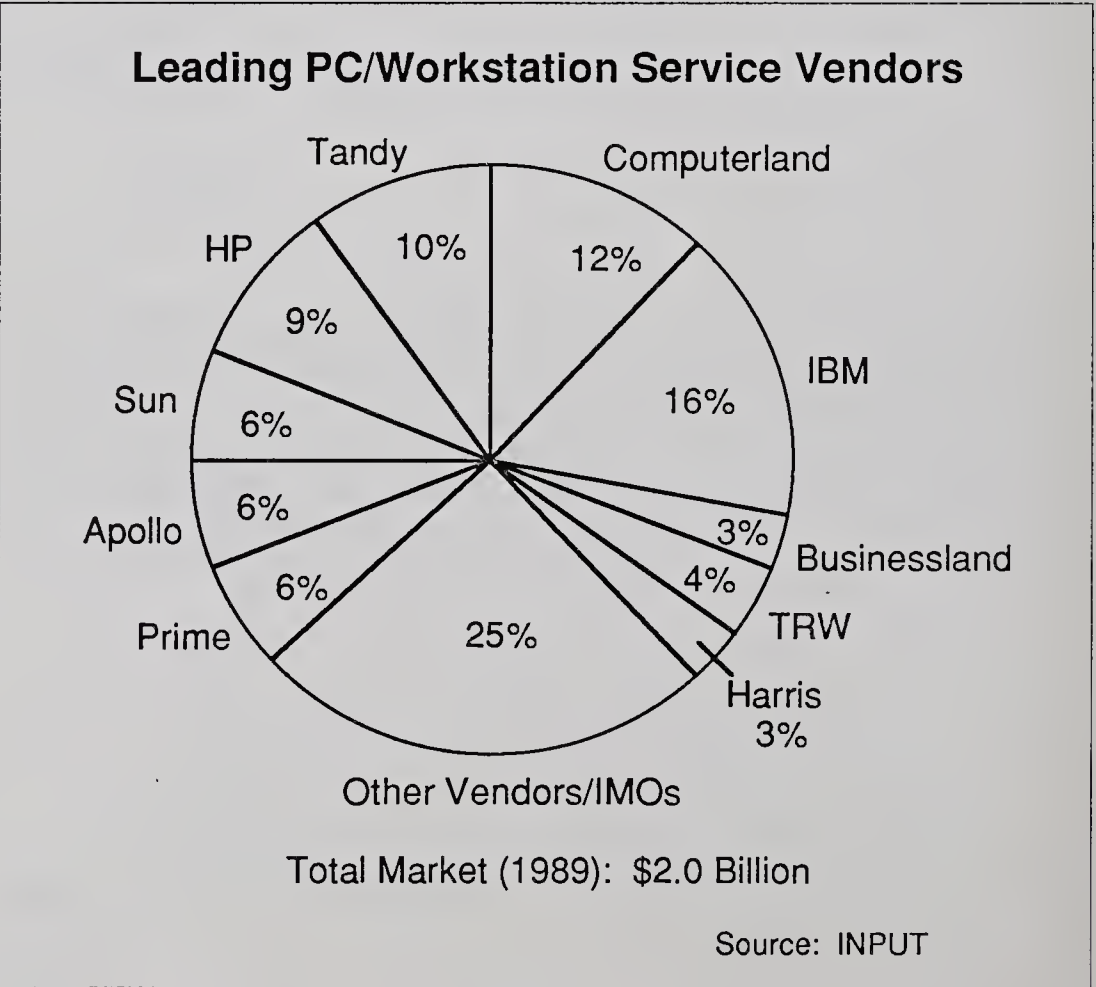


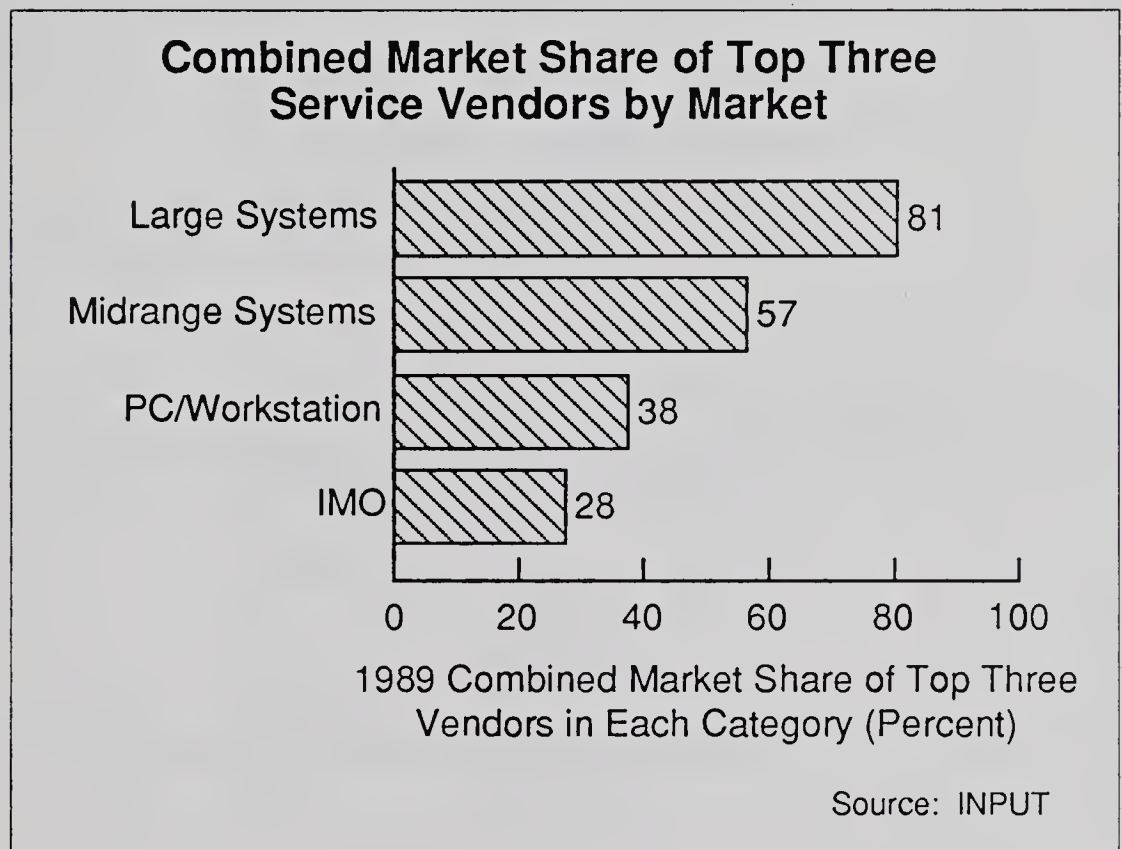
EXHIBIT II-8



Parts of the market are much more concentrated than others: the top three vendors in the large systems category account for over four-fifths of the revenues, while the top three IMOs account for under a quarter as shown in Exhibit II-9. This service concentration is a product of:

- The amount of underlying concentration at the manufacturers' level
- The newness of a particular market (e.g., PCs/workstations)
- The structure of the market (as in the PC/workstation and IMO categories)

EXHIBIT II-9

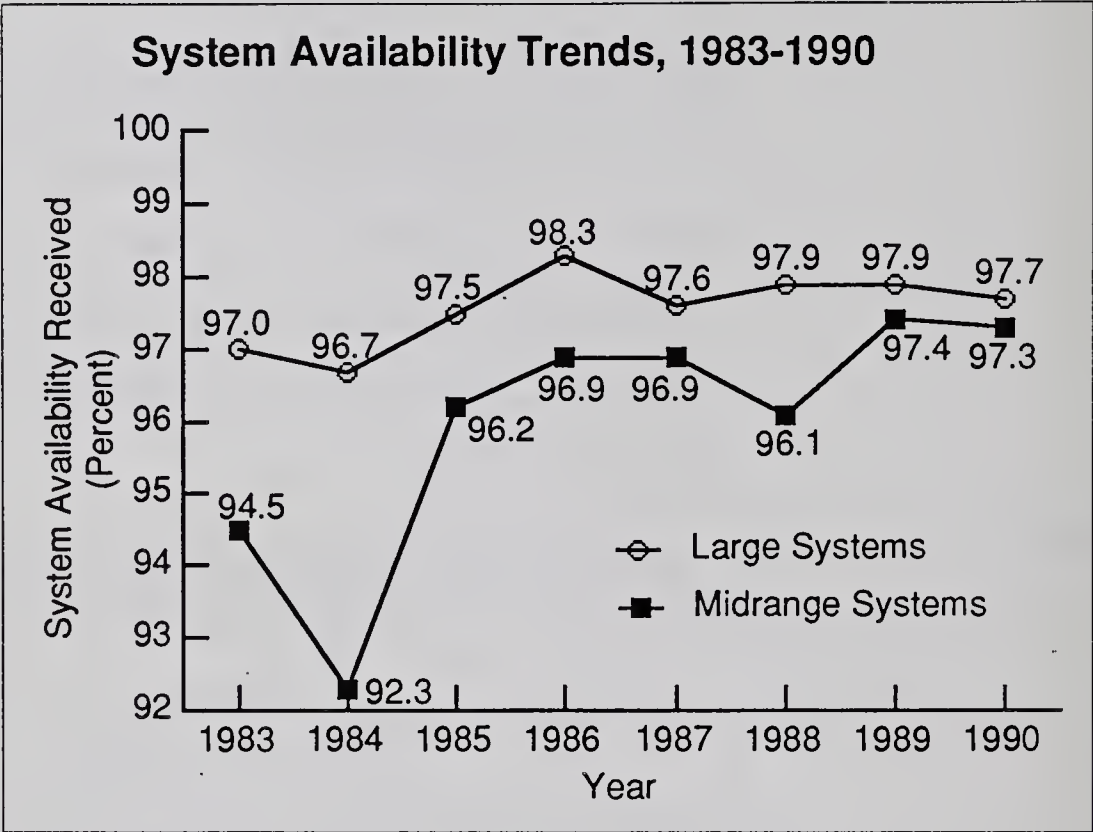


D

Systems Availability Trends, 1983-1990

Systems availability is of primary importance to users of information processing systems. INPUT has tracked vendor performance in this area since 1983. In 1990, INPUT surveyed 207 users of large and midrange systems regarding the service and support they receive from their vendors, including their satisfaction with system availability. Exhibit II-10 presents system availability for large and midrange system performance for the past seven years. For the first time, in 1989 the gap between large-scale and midrange systems availability was practically closed. Note: the severe dip in 1984 resulted from the inclusion of older products from Datapoint and Burroughs in the midrange sample.

EXHIBIT II-10

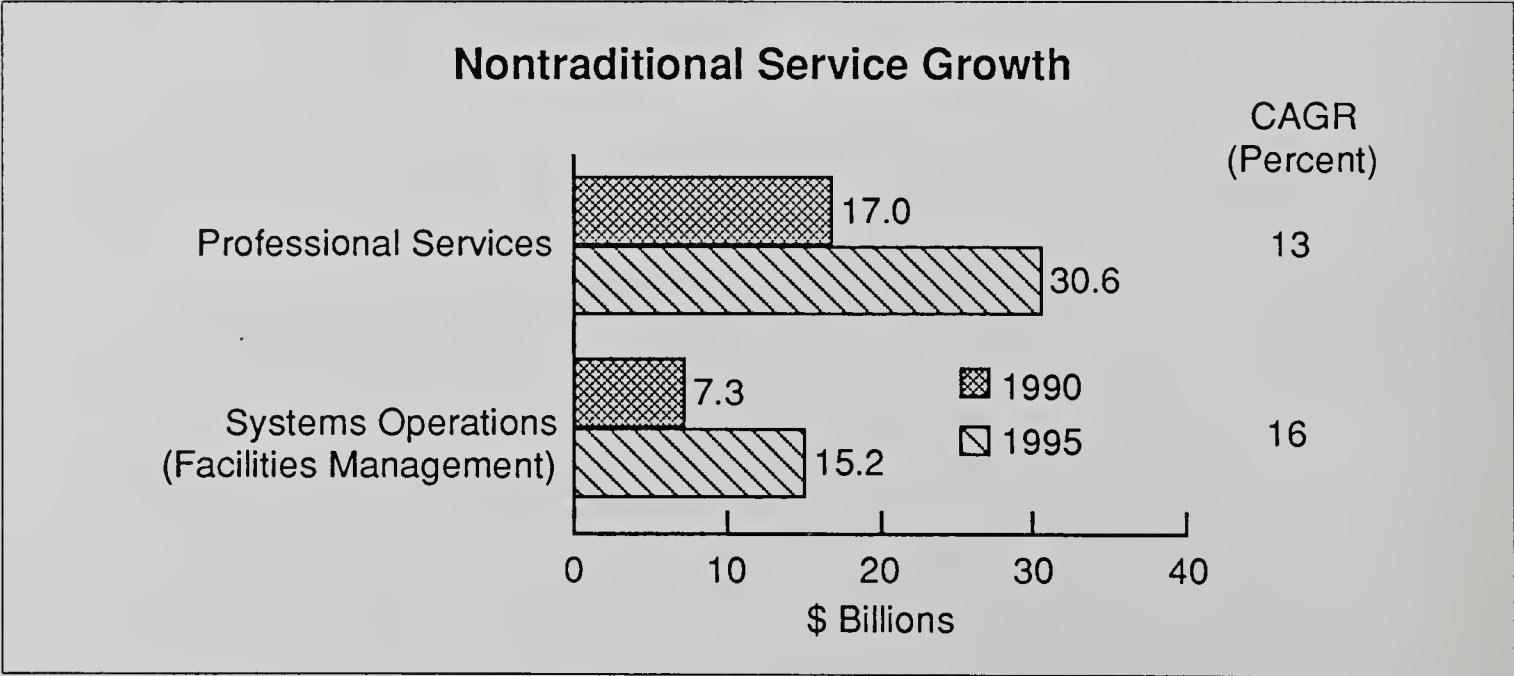


E

New Opportunities

The broader areas of service are growing much faster than traditional customer services (Exhibit II-11).

EXHIBIT II-11

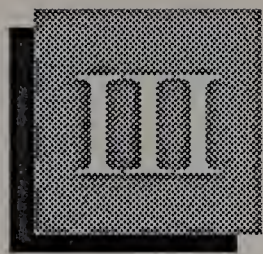


Not all of these markets and submarkets are equally attractive to customer service organizations. Some areas, such as supplying specialized consulting services or systems operations services, draw upon the strengths of many more customer service organizations, as shown in Exhibit II-12.

EXHIBIT II-12

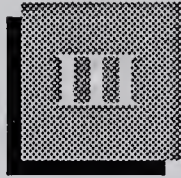
Professional Services Opportunities for Customer Service Organizations: Summary

Professional Services Segment	Opportunity	Comment
Consulting	Fair/good	Depends on specific skills available
Applications Development (New Systems)	Limited	Highly competitive
Applications Support (Existing Systems)	Good	Need project management and some technical skills
Systems Integration	Limited	Enter at later phase
Turnkey	None	Tied too closely to software product offerings
Systems Operations	Good	Competitive situation still fluid



Service Market Size and Forecast, 1990-1995





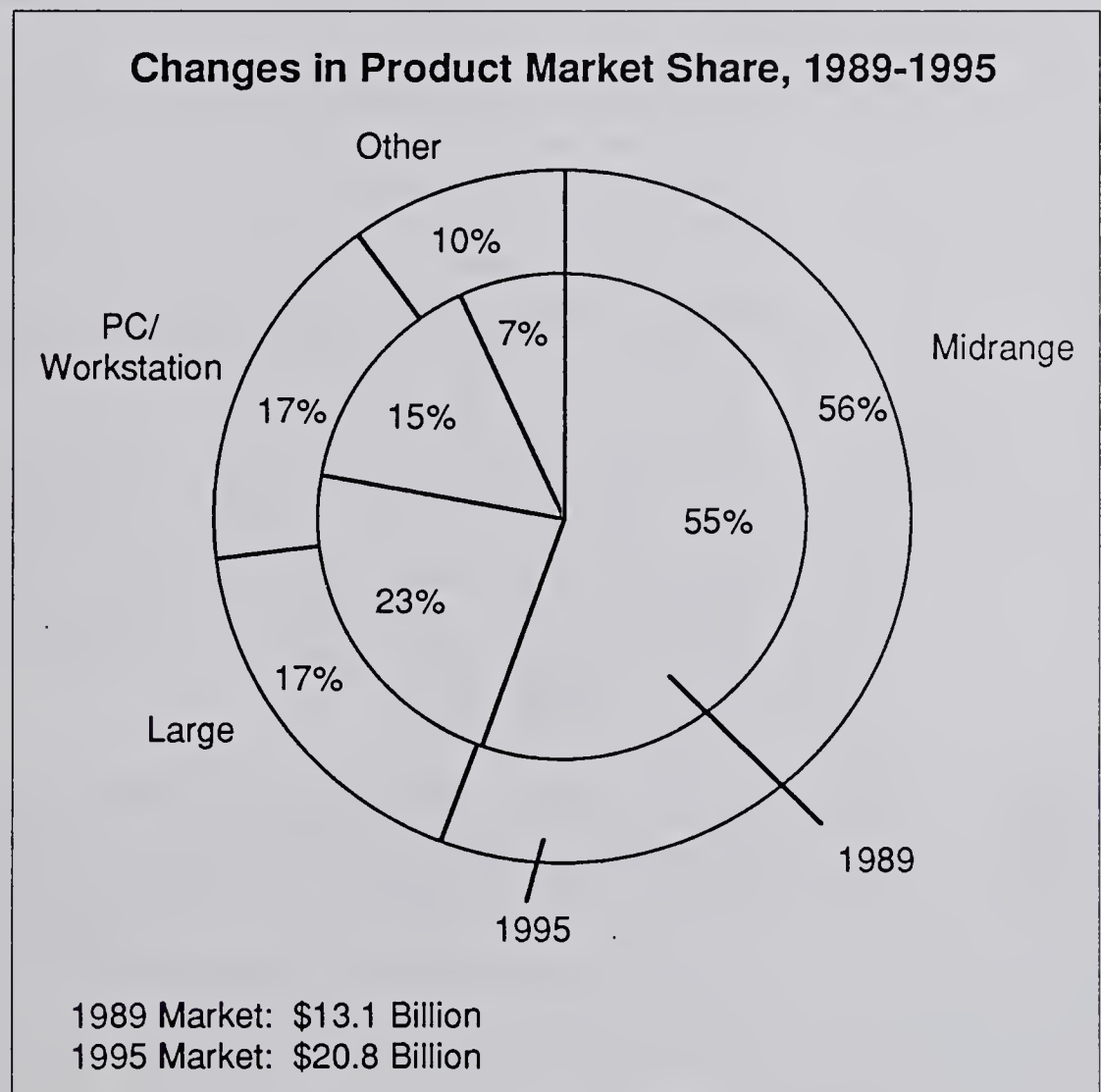
Service Market Size and Forecast, 1990-1995

A

U.S. Customer Service Market Size and Forecast

The 1989 U.S. customer service market for large midrange and PC workstation systems and ancillary/other services was \$13.1 billion and will grow to \$20.8 billion in 1995, as shown in Exhibit III-1.

EXHIBIT III-1



User expenditures in the large systems segment amounted to \$3.0 billion for traditional mainframes, minisupercomputers, and supercomputers that have typical word lengths of 32 bits and configuration prices in excess of \$350,000. Examples of such systems include IBM 303X, 308X, 309X, and ES9000, and computer systems that compete with these products, including systems from Hitachi, Amdahl, NCR, Unisys, CDC, and Bull. A smaller segment of this market is held by supercomputer manufacturers (typical configuration prices exceeding \$1 million) led by Cray Research.

The large systems service market has been the largest, due to the fact that it is both the oldest and the costliest (in terms of system purchase price). However, a number of factors have reduced the relative size of this service market, including decreased failure rates of components; price reductions caused by competition (i.e., IBM's Corporate Service Amendment, which effectively reduces CPU maintenance to less than 1.5% of purchase price) that have reduced large systems revenue contribution; expected new products that have slowed new product sales and caused users instead to "bulk up" their existing systems by adding memory; and increasingly powerful smaller systems, which provide the same power and speed as older, larger systems at greatly reduced size and cost.

Due to the increase in speed and capacity brought about by new technology, midrange systems service constitutes an increasingly important service market, both for manufacturers and for IMO's (independent maintenance organizations) that are focusing on midrange systems as a growth market. The midrange market was \$7.2 billion in 1989. Midrange systems can be categorized as superminicomputers and the more traditional business minicomputers that—due to steadily improving design and technology—have outgrown traditional definitions (which defined small systems as providing 16-bit to 32-bit word lengths at prices ranging from \$15,000 to \$350,000). A growing number of microcomputers and workstations meet the 32-bit definition, and many cross over the \$15,000 lower price limit. Typical midrange systems include IBM System /3X, 43XX, AS/400, and 937X product lines; DEC PDP and VAX families (excluding Micro VAX families); and competitive products from a wide range of vendors, including HP, Data General, Wang, AT&T, Prime, Concurrent, Gould, Unisys, NCR, Bull, Harris, Tandem, Stratus, and many others.

Technological advances have also contributed to the PC/workstation market segment, which now comprises 15% of the total service market and was \$2.0 billion in 1989. This segment contains business-use microcomputers, supermicrocomputers, and technical workstations that traditionally are defined as 16- to 32-bit word lengths (again, advances have stretched these boundaries) and systems prices that typically fall below \$15,000. Leading products in the traditional microcomputer segment include IBM's PC family (including the PS/2 line), Apple Macintosh,

and systems from Compaq, Tandy, and at least 200 "name" and "no-name" IBM PC clone manufacturers. The most interesting end of this market, the super microcomputer and technical workstation markets, are represented by products from Apollo, Sun, Altos, DEC (the Micro VAX), and to some extent, IBM (some see the extension of the PS/2 line into this market).

Ancillary services consist of maintenance training, preinstallation planning, consulting, installation/deinstallation, and network design and planning. INPUT estimates that this heterogeneous market was \$850 million in 1989. There are additional services now being offered that fall outside this definition, including network review, equipment workflow analysis, operational review, and upgrade and materials review and supply. These services are being included in the new "ancillary /other" category.

Midrange systems account for over half of the market, followed by large-scale systems with almost a quarter of the market. These proportions are not expected to change significantly over the next few years.

INPUT expects ancillary services to grow fastest (see Exhibit III-2), although from a relatively low base. This growth reflects the increasing opportunity for professional services associated with customer services.

EXHIBIT III-2

Computer Services Market Forecast, 1990-1995

System Size	\$ Millions							CAGR (Percent)
	1989	1990	1991	1992	1993	1994	1995	
Large	2,967	3,060	3,148	3,240	3,336	3,435	3,536	3
Midrange	7,239	7,839	8,489	9,193	9,957	10,784	11,679	8
PC/Workstation	2,001	2,201	2,421	2,663	2,930	3,223	3,545	10
Other	899	1,032	1,183	1,358	1,558	1,789	2,053	15
Total	13,106	14,132	15,241	16,454	17,981	19,231	20,813	8

1. Forecast Factors

Other factors can also increase customer service revenues under certain circumstances. Much of the motivation behind IBM's lowering of customer service charges from 1986 to 1988 was to reduce its customers' overall cost of ownership. This might have helped IBM overall, but the action certainly reduced IBM's service revenues and had an impact elsewhere in the market.

IBM began to reverse its position with selective service price increases in 1989 driven by its need to increase overall revenues (and profitability). For the remainder of the market, this has had the effect of partial reopening of the IBM price umbrella. Exhibit III-3 reviews this impact and other market forces that can increase revenue.

EXHIBIT III-3

Factors Increasing Customer Service Revenue

Factors Increasing Customer Service Revenues	Impact
IBM price umbrella beginning to reopen	Increased vendor opportunities and competition especially for IMOs
Need for vendors to increase revenue and profitability	Consideration of new services that require little additional personnel
Increasing customer need for systems performance	Increased need for add-on services
Growing installed base of new computers and networks	Need for more knowledge and experience

The primary reasons for INPUT's not increasing its growth estimates for large systems was the slowed growth of the installed base and the greater reliability of equipment. Despite selective price increases, growth should not increase at a faster rate than in the past.

2. Independent Maintenance Organizations

INPUT forecasts an overall growth rate of 8% for the IMO market, with somewhat more opportunity in the midrange and PC/workstation segments, as shown in Exhibit III-4.

EXHIBIT III-4

Independent Maintenance Organization Forecast, 1990-1995

System Size	\$ Millions							CAGR (Percent)
	1989	1990	1991	1992	1993	1994	1995	
Large	87	92	98	104	110	116	123	6
Midrange	990	1,069	1,155	1,247	1,347	1,455	1,571	8
PC/Workstation	825	900	980	1,068	1,165	1,270	1,384	9
Other	165	178	192	208	224	242	261	8
Total	2,067	2,239	2,425	2,627	2,846	3,083	3,339	8

IMOs have been able to enjoy relatively minor resistance in competing for service of the following:

- Peripherals, particularly those supplied by a manufacturer different from the one supplying the CPU
- Microcomputers/workstations, whose manufacturers might not have a service presence or a well-known presence for service
- Older, obsolete equipment, whose manufacturers did not want to do perform service or do not currently exist

As the IMO industry developed, IMOs attempted to attract users of new equipment, particularly users of systems who in the past stayed predomi-

nantly with the manufacturer's service organization. In order to be successful at this, IMOs often relied on extremely low service prices (usually 25% to 33% less than manufacturer service prices) as a lure. At the same time, IMOs continued to use small-ticket product service (e.g., for microcomputers and peripherals) as a way of getting a foot in the door and later drawing away larger-product service.

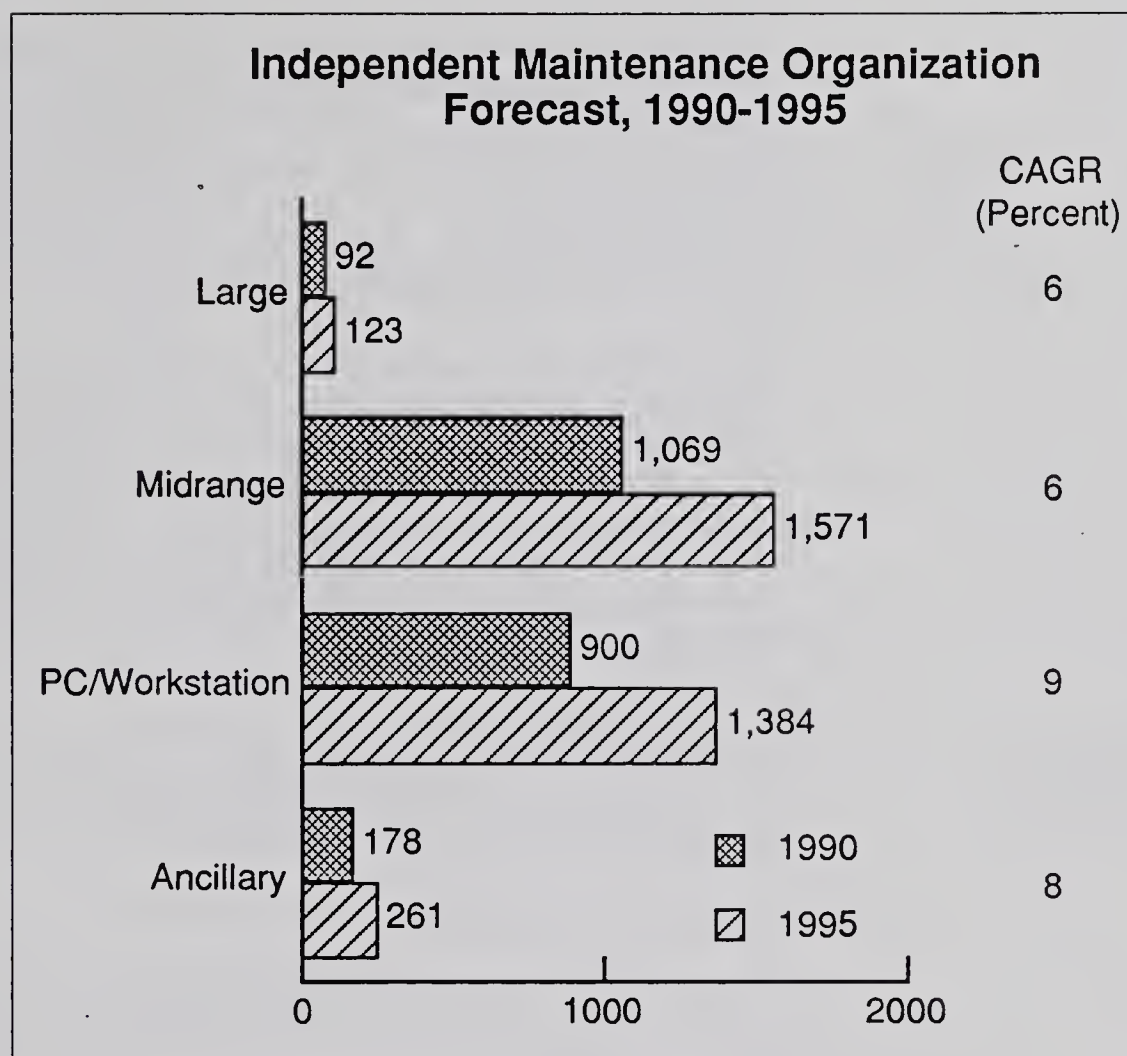
In late 1986 and 1987, IBM made a number of service pricing and policy announcements that would severely hamper IMO penetration into IBM's user base. The most significant of these announcements were the elimination of non-prime (outside of Monday-Friday, 8 a.m.-5 p.m.) time-and-material service; expansion of contract service coverage for all systems to 24-hour, 7-day; service tightening of the spares pipeline; and, most importantly, expansive service discounting programs (CSA and MRSA) that brought IBM service pricing in line with, or even lower than, the prices of most IMOs.

IMO service organizations that competed directly with IBM for systems service were forced to offer similar service plans. Bell Atlantic Business Systems Service (including the CDC Third Party Maintenance Division), TRW, and Intellogic Trace all offered multiyear service discount plans that often removed many of the customer involvement requirements, such as the help desk or the initialization review and fees.

IBM kept pressure on IMOs by offering prepayment discounts (EMO) and its own multivendor service program, called Technical Services Management (TSM). Other vendors offered new multivendor support offerings (HP and DG), or expanded earlier offerings (DEC).

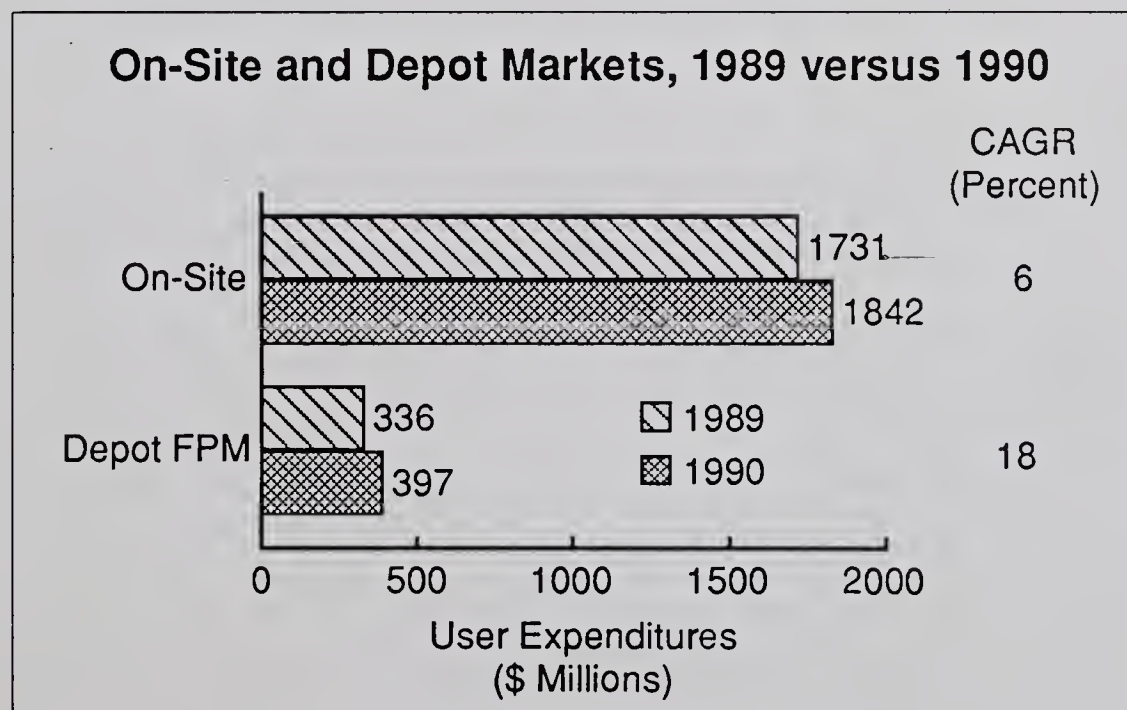
Breaking down the IMO market by product type demonstrates the effect that IBM's CSA and MRSA service policies have had on IMO growth prospects, as shown in Exhibit III-5. In the large system service market, IMOs have found it difficult to supplant the manufacturer's service offering, since large system users are somewhat less price-sensitive and are more apt to require non-hardware maintenance services that IMOs typically do not provide. In addition, user concern over spare parts availability and access to remote diagnostics and support tools is greater in the large systems market, given the high system availability requirements expressed by large system users. Accordingly, IMO efforts to expand into this market have been limited to either the largest IMOs or small IMOs with focused (product or geographic location) service offerings. The larger IMOs are also coming under serious price pressure from much smaller "mom-and-pops" that have much lower overhead.

EXHIBIT III-5



The bright spots on the IMO scene are the raising of IBM's price umbrella (at least to an extent) and depot maintenance (fourth-party maintenance), which had a good growth rate from 1988 to 1989, although starting from a low base, as shown in Exhibit III-6.

EXHIBIT III-6



Typical services offered by FPM organizations include product refurbishment (which includes cleaning and cosmetic changes), product refeaturing (product upgrades/downgrades and memory expansion), and reconditioning (typically subassembly repair and remanufacturing). Since sealed disk drives are a common product serviced by FPMs, most major FPM operations require a Class 100 cleanroom environment, since dust contamination can destroy disk drives.

FPM offers many benefits to service organizations. Using FPMs to remanufacture components frees manufacturers from having to send components back through their own manufacturing facilities, resulting in faster returns and minimal interruption of normal manufacturing cycles. TPMs without remanufacturing capabilities can utilize FPM to expand their service offerings to include product refurbishment, refeaturing, and reconditioning services without the labor or material (parts, equipment, and clean room) requirements.

B

Competitive Environment

In this section, the service providers and market share will be examined, as will major acquisitions and activity that has occurred over the last year in the independent maintenance market.

1. Service Providers

The top ten U.S. service providers account for 75% of the market, as shown in Exhibit III-7. In the 1989 report, Computerland was the first nontraditional service provider that appeared on the top ten. This year, Computerland moved up to the number nine spot, and with the acquisition of CDC's TPM division by Bell Atlantic Business Systems Service, Bell Atlantic ranked number seven in overall service revenues.

EXHIBIT III-7

Top Computer Service Vendors

Company	Rank	1989 Revenue (\$ Millions)	Market Share (Percent)
IBM	1	3,281	25
DEC	2	2,277	17
NCR	3	1,013	8
Hewlett-Packard	4	927	7
Unisys	5	898	7
Bull HN	6	393	3
Bell Atlantic Business System Services	7	280	2
Wang	8	265	2
Computerland	9	250	2
Prime	10	238	2
Total Top Vendors		9,822	75
Other Vendors		3,299	25
Total Market		13,121	100

The top large systems service vendors are presented in Exhibit III-8. All of the top vendors remained stable in their percentage of market share for 1989, as compared to 1988 market share.

EXHIBIT III-8

Top Large Systems Computer Service Vendors

Company	Rank	1989 Revenue (\$ Millions)	Market Share (Percent)
IBM	1	1,565	53
Unisys	2	675	23
CDC	3	137	5
Amdahl	4	129	4
Bull HN	5	113	4
Hitachi	6	103	3
Cray	7	83	3
NCR	8	73	2
Total Top Vendors		2,878	97
Other Vendors/IMOs		89	3
Total Large Systems Market		2,967	100

Stable market share was also the case among midrange system service vendors, as shown in Exhibit III-9. The midrange market grew by just over 8% from 1988, with all of the top vendors retaining the same share of the market.

EXHIBIT III-9

Top Midrange Systems Computer Service Vendors

Company	Rank	1989 Revenue (\$ Millions)	Market Share (Percent)
DEC	1	2,109	29
IBM	2	1,250	17
NCR	3	765	11
Hewlett-Packard	4	663	9
Wang	5	265	4
Data General	6	205	3
Tandem	7	183	3
AT&T	8	162	2
Gould	9	130	2
Bull HN	10	129	2
Total Top Vendors		5,861	81
Other Hardware Vendors		377	5
Subtotal		6,238	86
IMOs		1,001	14
Total		7,239	100

The top vendors in the PC/workstation market also remained fairly stable in market share, with only minor changes, as shown in Exhibit III-10. Hewlett-Packard and Businessland seem to have lost approximately 1% of their market share from 1988. The "other vendors" category increased very slightly in market share. But the overall market ranking remained stable, with all of the top vendors retaining their 1988 ranking in the PC/workstation service market.

EXHIBIT III-10

Top PC/Workstation Systems Computer Service Vendors			
Company	Rank	1989 Revenue (\$ Millions)	Market Share (Percent)
IBM	1	322	16
Computerland	2	238	12
Tandy	3	195	10
Hewlett-Packard	4	190	9
SUN	5	119	6
Apollo	6	114	6
Prime	7	112	6
TRW	8	84	4
Businessland	9	68	3
Harris	10	59	3
Total Top Vendors		1,501	75
Other Vendors/IMOs		500	25
Total Market		2,001	100

The upheaval and activity in the independent maintenance market resulted in the top vendor revenues and market share shown in Exhibit III-11. The vendors on the list were the same as those from 1988, but there have been changes in their position and market share. The acquisition of the third-party maintenance division of CDC by Sorbus resulted in Sorbus' increase in market share. Shortly after the acquisition, Sorbus changed its name to Bell Atlantic Business Systems Service to more clearly reflect the increased coverage and the combination of the acquired business units into one new cohesive unit. McDonnell Douglas Field Service Division also went through a management buy-out resulting in a name change to Novadyne and an increase in market share from 4% in 1988 to 5% in 1989.

EXHIBIT III-11

Top Independent Maintenance Organizations

Company	Rank	1989 Revenue (\$ Millions)	Market Share (Percent)
Bell Atlantic Business System Services*	1	280	14
TRW	2	150	7
GECS	3	138	7
Intellogic Trace	4	130	6
Decision Data	5	118	6
Novadyne (McDonnell Douglas FS)	6	100	5
NCR	7	100	5
Dataserv	8	75	4
IDEA Service	9	70	3
Total Top Vendors		1,161	56
Other Vendors		906	44
Total Market		2,067	100

*Total revenue for Bell Atlantic and CDC TPM Division, combined during 1990.

2. Major Acquisition Activity

As previously mentioned, the biggest acquisition of 1990 was Sorbus' acquisition of the Control Data's third-party maintenance division. This move joined the top ranking vendor of 1988 with the sixth-ranked vendor, giving the new company the largest share of the independent maintenance market. Once the acquisition was completed, Sorbus was renamed Bell Atlantic Business Systems Service to better describe the new organization.

The other major change in the independent maintenance market was the leveraged buy-out of the McDonnell Douglas Field Service Division (MDFSCO) by the MDFSCO management. Novadyne Computer Systems, Inc. was formed from the buyout, and has over 1000 professionals located in over 100 offices across the U.S. Novadyne represents the combined forces of the former Microdata, MCAUTO, and Tymshare field service organizations.

During midyear 1990, IBM announced the intention to divest existing ATM service agreements to Diebold. This move was made after an announcement by IBM and Diebold that they would form a joint venture to develop and market self-service banking systems worldwide.

In October, FRS of San Francisco announced the acquisition of Premier Computer Corporation. As a result, FRS claims to be the largest independent depot repair company in the U.S. (Under INPUT's definitions, both companies are fourth-party maintenance companies.) This most recent acquisition was another step to strengthen the companies' capabilities in servicing hard and floppy drives, laser printers, and tape drives.

The acquisition of TRW Customer Service Division by Phoenix Technologies, Inc. was announced during the fourth quarter of 1990, with the sale expected to close January 31, 1991.

C

Western European Customer Service Market

1. Market Forecast, 1990-1995

Overall growth of the Western European customer service market is forecast at 8% CAGR over the five-year period from 1990 to 1995, as shown in Exhibit III-12. This level of growth is about 2.5% above the overall level of Western European inflation, currently at 5.5%, which indicates real growth in the market.

The origins of the real growth for customer services result from the relatively high growth forecast for nonmaintenance services. The nonmaintenance services are forecast to grow at approximately a 20% CAGR between 1990 and 1995, contributing about \$3.9 billion to the market in 1995. The contribution of the nonmaintenance services is expected to offset the negative growth of the traditional hardware maintenance segment, which will see a reduction of about \$1.3 billion by 1995.

Exhibit III-13 presents the Western European customer services market forecast by type of vendor.

EXHIBIT III-12

Western European Customer Services Market Growth, 1990-1995

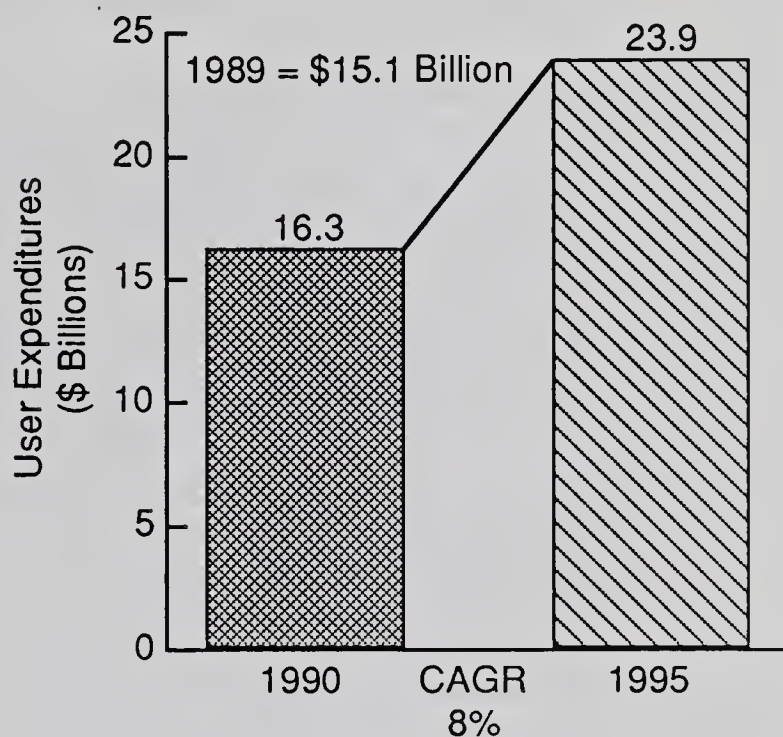
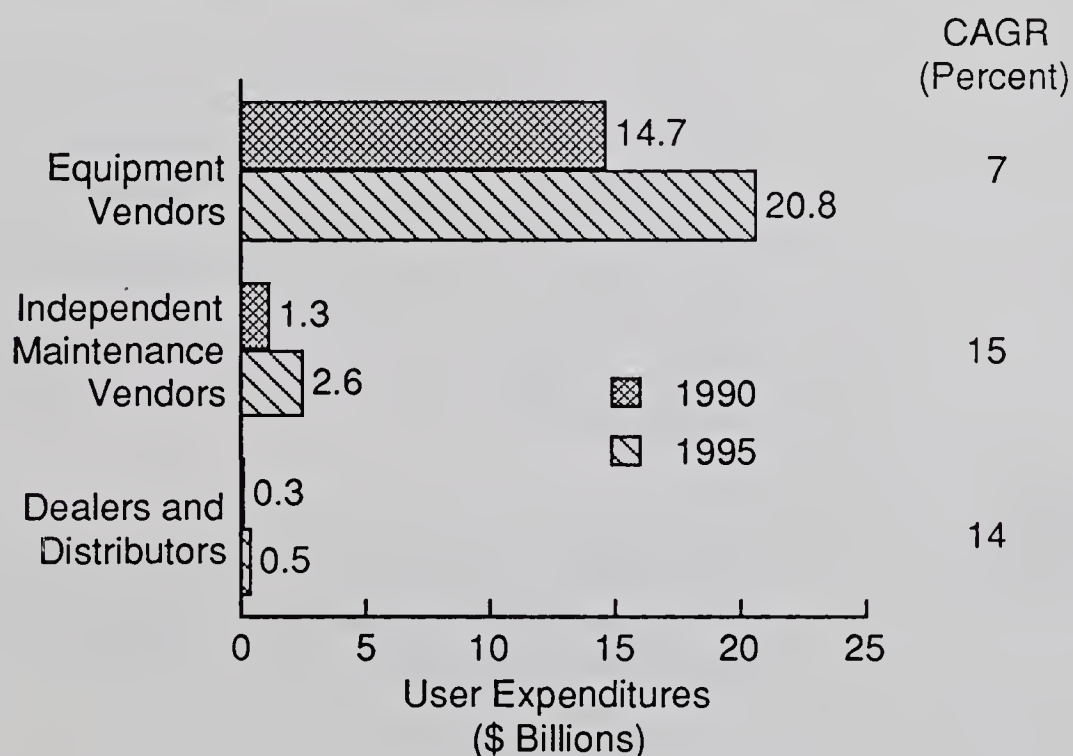


EXHIBIT III-13

Western European Customer Services Market, Growth by Vendor Type, 1990-1995



Equipment vendors currently retain the largest proportion—approximately 90% of the market—of user expenditures for customer service in Western Europe. This market share is forecast to decline slightly (about 3%) by 1995 as a result of higher growth in other vendor sectors of the market.

Independent maintenance vendors are expected to experience the highest level of growth, approximately 15%, over the period. As a result, independent maintenance vendors will increase market share from 8% in 1990 to 11% by 1995. Evidence supporting this growth is found in the users' research, where 6% of the users stated a willingness to change to independent maintenance for price reductions of less than 20%. In order to achieve an 11% market share by 1995, independent maintenance vendors would require success with only one-half of those expressing a willingness to change based on price.

Growth in the dealer and distributor sector of the market is subject to constraint. Although there is an increasing trend for equipment to be sold through third-party channels, the equipment sold is primarily PCs. Because they have a history of being fairly reliable, PCs are not usually subject to a maintenance agreement after the warranty period has expired. A high percentage of PC users, about 60%, reported being willing to rely on ad hoc service in the unlikely event of equipment failure. This results in an increasing percentage of equipment flowing through the dealer and distributor market in Western Europe, but a low probability of service contracts remaining in the dealer/distributor service market after the expiration of the warranty period.

2. Long-Term Trends

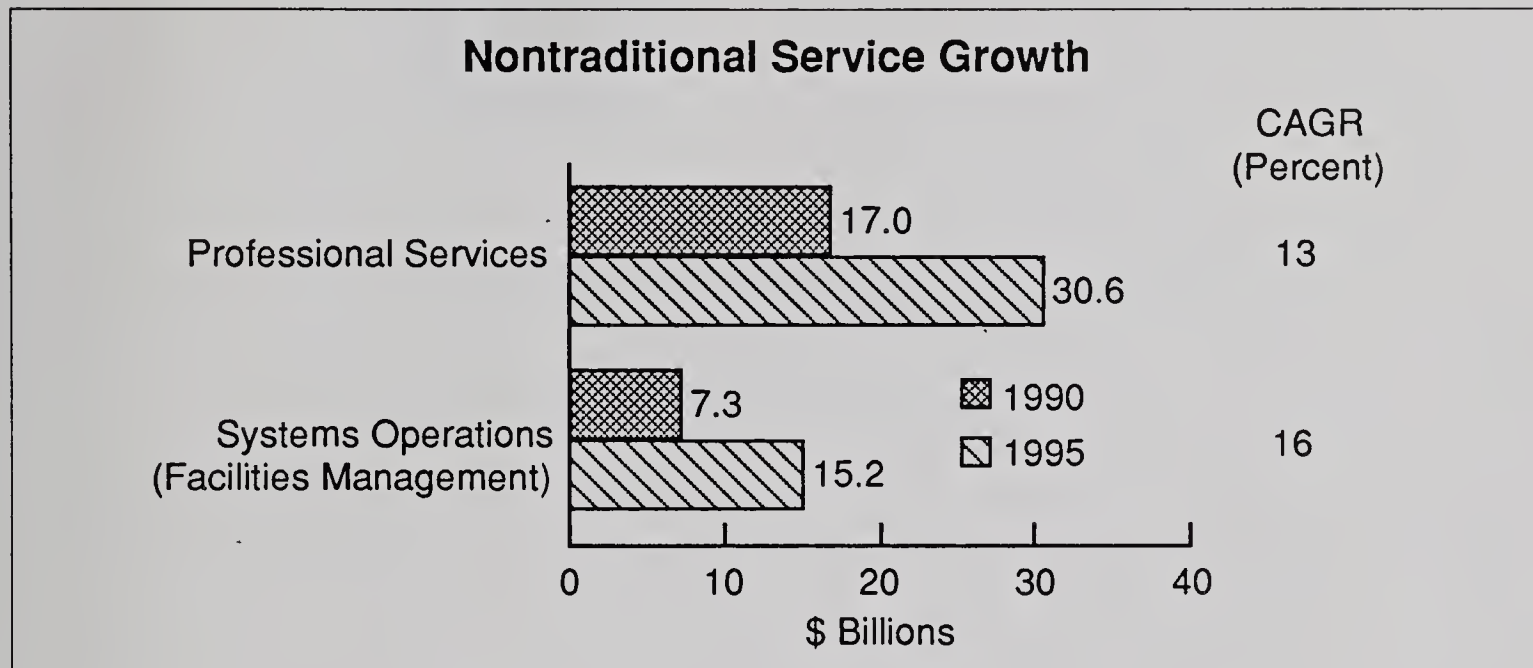
The major long-term trend in the Western European customer service market is the increasing emphasis on nonmaintenance activities. Currently about 80% of customer service revenues are derived from hardware service. It is the dependency on hardware maintenance that has been responsible for the decline in the market over the last few years. Over the next five years, the relatively high growth of nonmaintenance services is projected to reduce the reliance on hardware service as a major source of revenue. By 1995, revenue from nonmaintenance services is expected to account for a 35% share of the total customer services market.

D

New Service Opportunities

Many customer service organizations are entering or considering entering new fields, such as consulting, general professional services, disaster recovery, and systems operations. These other categories are generally growing much faster than traditional customer services (Exhibit III-14).

EXHIBIT III-14

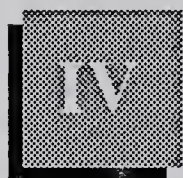


INPUT has not included the value of these services in its customer service forecast (Exhibit III-1) since these services are not intrinsically customer services, but rather are general information services that are offered by customer service organizations. In addition, classifying these services as customer services would expose them to the vagaries of corporate reorganizations (e.g., IBM's moving services into and out of its National Services Division, culminating in the dissolution of NSD itself).



Customer Service Market Issues and Trends





Customer Service Market Issues and Trends

The following chapter will examine major issues and trends and their effects on the customer service market. Some of the issues discussed are changes in current service offerings that will, in the long term, redefine the services that are offered and the delivery of those services.

Issues to be covered include:

- IBM strategy and actions
- Single-source hardware and software service
- Manufacturer-dealer support programs
- Maintenance/support insurance
- Remote monitoring
- Call home features
- User requirements
- Effects of recession
- Expansion into nontraditional markets

A

IBM Strategy and Actions

It has been said by many vendors that IBM, by sheer size, defines the maintenance and support services market, either directly or indirectly.

IBM has made a series of announcements over the last year relating to the decentralization of their service area and integration of service responsibilities into the geographic marketing and service areas. Early in 1990, IBM moved the planning and financial responsibilities of service from NSD to the geographic Marketing & Service (M&S) staff. Later in the year, the reporting structure of services changed from reporting directly to NSD to reporting to the M&S Area General Manager. Then, near the end of 1990, the dissolution of NSD was announced, with all service responsibilities going to the M&S Area Manager. These moves have been reported to emphasize the responsibility of the local areas to respond to new demands for service and to further emphasize quality of service to the users.

There have not been many new service announcements from IBM in 1990, since IBM has been focusing on the implementation of products and services announced in 1989. The products and services that were announced included the RISC 6000 engineering workstation, the ES9000 family of products, and IBM FastService application troubleshooting software.

The major impact of the ES9000 announcement was the field service upgrade strategy of putting more of the capabilities of upgrading in the field with the field service staff. More of the upgrades that have in the past been done at the manufacturing plant will be implemented by the service staff.

IBM FastService software assists in the troubleshooting of applications in-house, helping the productivity of the in-house application software staff. The proprietary software will support applications developed in COBOL, PL/1, or ASSEMBLER applications running under MVS/XA or MVS/ESA.

B

Single-Source
Hardware/Software
Service

Over 75% of the users interviewed stated a requirement for one source for hardware service and software support, as shown in Exhibit IV-1. When the response is broken out by product, it is the midrange and PC/workstation areas where the greatest need is expressed. Seventy-nine percent of the midrange users want to be able to call one vendor and have all of their support needs handled. The PC/workstation users expressed this same high requirement, with 78% of the users desiring one source of service and support.

EXHIBIT IV-1

User Interest in One-Vendor Hardware/Software Support	
System	Percentage of Respondents
Large	71
Midrange	79
PC/Workstation	78
Total Sample	75

Exhibit IV-2 presents information regarding the type of vendor users want to provide the one-source hardware and software support. The majority of users would like to see the manufacturer of the main hardware installed as being the provider of all service and support. Some openness to other alternatives exist in the PC/workstation sample, where only 62% reported a preference for the manufacturer of their main hardware.

EXHIBIT IV-2

Vendor Preference for One-Vendor Service/Support

Type of Vendor	Percent of Respondents			
	Large	Midrange	PC/ Workstation	Total Sample
Manufacturer of Main Hardware	89	85	62	82
Dealer/Distributor/VAR	6	10	3	7
IMO	11	11	13	11
One of the Manufacturer Installed	5	11	3	7
Don't Know/Other	5	12	23	12

Multiple responses allowed.

C

Manufacturer-Dealer Support Programs

One of the untapped areas of enhancing the manufacturer's maintenance presence has been expanding service programs to include alternate channels of equipment distribution. During the last part of 1990, Hewlett-Packard announced enhancements to its Dealer Premier Support Program that are intended to strengthen the support capabilities of the authorized HP dealers.

Services now available to the dealers are access to a 24-hour, seven-days-per-week fax service for support information on HP peripherals and Vectra PCs, expanded warranty reimbursements, on-site travel reimbursement for warranty repairs, and improved hardware subcontracting options for the dealers.

Maintenance options such as those announced by HP and other manufacturers allow the manufacturer to partner with the authorized dealers to provide service to the users rather than compete against the dealers for the service business. Partnering was seen as one of the options available to equipment manufacturers to increase their coverage of services required by users, as well as increase market presence.

D

Maintenance/ Support Insurance

Another trend that may have a major effect on the customer service market is the increasing use of maintenance and support insurance as an alternative to a maintenance contract. The maintenance insurance policy works in the same manner as health insurance. Rates are calculated, using actuarial tables, on the life expectancy of the hardware. When service is required on the equipment or support required for the software, the user calls the hardware manufacturer or other repair organization to service the system. Invoices for the time and materials service are sent to the insurance company for verification of rates/service and payment.

The maintenance and support insurance provides comprehensive coverage for costs of parts, labor, travel, overtime, and rental of substitute equipment. Reimbursements are made for damage caused by electrical and mechanical failure and damage caused by negligence, human error, power fluctuations, and consequential loss, such as air conditioning failure. Reimbursements are also made for labor and parts on repairs made by the in-house personnel.

Insurance companies offering this type of policy claim savings of 10% to 30% off of traditional maintenance contracts.

Maintenance contract insurance started in the early 1980s as an alternative to maintenance contracts on electronic and computer equipment in hospitals. The concept has spread to all industry sectors, with over 1,000 user sites across the U.S. now subscribing to insurance rather than maintenance contracts. The typical renewal rate for the maintenance insurance contract has been about 90% over the last few years.

Main advantages of the insurance alternative include availability of comprehensive coverage of all electronic and computer equipment at the user's site, guaranteed fixed budget costs, management control reports on maintenance activity, and cost savings from consolidation of maintenance contracts.

The main inhibitor to the widespread use of insurance on computer equipment has been the traditional maintenance contract mindset of the IS community. In the face of increasing pressures to contain or trim expenses, many more users may be open to this maintenance contract alternative, changing the service vendor's environment from stable contracts to ad hoc time and materials repairs.

E

**Remote Monitoring
and Call Home
Features**

Remote monitoring and call-home capabilities allow the service provider to monitor or respond to problems with the equipment or software without having to be on-site. This allows the anomalies in hardware or software to be identified and corrective action to be scheduled at a time convenient for the service vendor and the user, which increases system availability or uptime as well as makes more productive use of the service technician's time.

Remote monitoring services are available through Novadyne for Tandem users as a value-added service. The proprietary, proactive diagnostic system regularly dials into the customer's computer and establishes communications for the purpose of identifying potential problems. The major advantage is to take action to correct any problem before it develops into a major failure that affects the availability of the system.

Bell Atlantic Business Systems Services has announced the MAXwatch system integrity monitor that effectively calls home for maintenance in situations where the system can not take action to correct itself. This capability is available for DEC VAX/VMS hardware running VMS 4.0 or later. The system can either taken corrective action and notify the system administrator when certain error thresholds are exceeded or sound an alarm that notifies the administrator that a failure is about to happen. An added feature is available that will place a service call to Business Systems Services' Technical Support Center.

Users rated the requirement for remote diagnosis as fairly high, ranging from a mean of 6.3 for PC/workstation users to 7.2 for large systems users. All of the overall sample mean ratings received for the different product sizes exceeded the required mean ratings. The percentage of users satisfied with their remote diagnostic service ranged from 77% for midrange users to 87% for the large systems users.

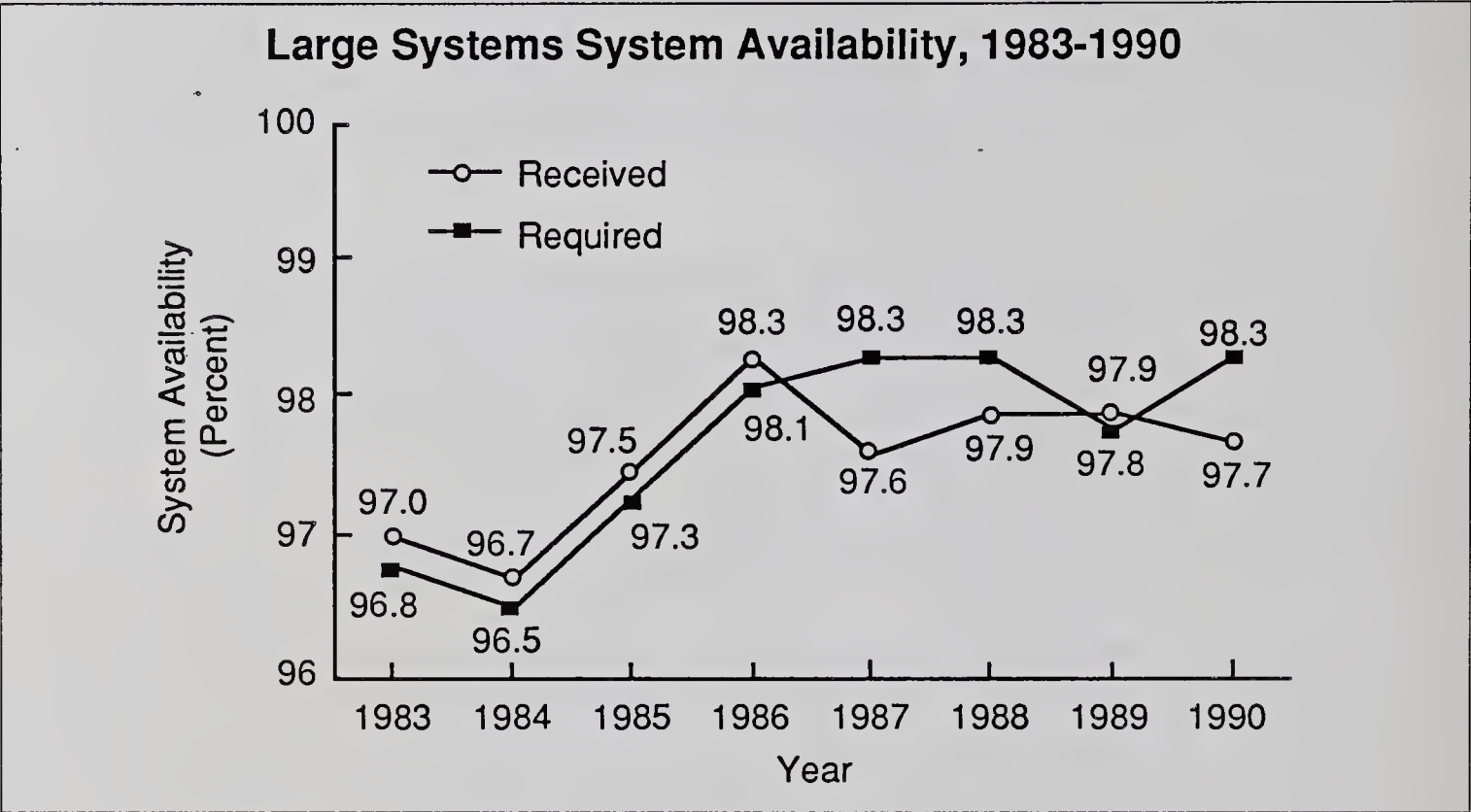
F

**User Service
Requirements**

One of the measurements of vendor performance has traditionally been system availability or uptime. Exhibits IV-3 and IV-4 present the history of the vendor's success in meeting the systems availability requirements of the large systems and midrange systems user sample.

In the 1990 large system sample, the service vendor failed to meet the mean requirement for system availability. The mean availability received rating stayed approximately the same from the 1989 sample, but the mean requirement rose from 97.8% in 1989 to 98.3% for the 1990 sample.

EXHIBIT IV-3



The opposite trend is seen in the midrange systems sample, where the mean requirement dropped from 97.5% to 96.8% for the same years. The mean availability received stayed about the same at 97.3% for the 1990 user sample.

EXHIBIT IV-4

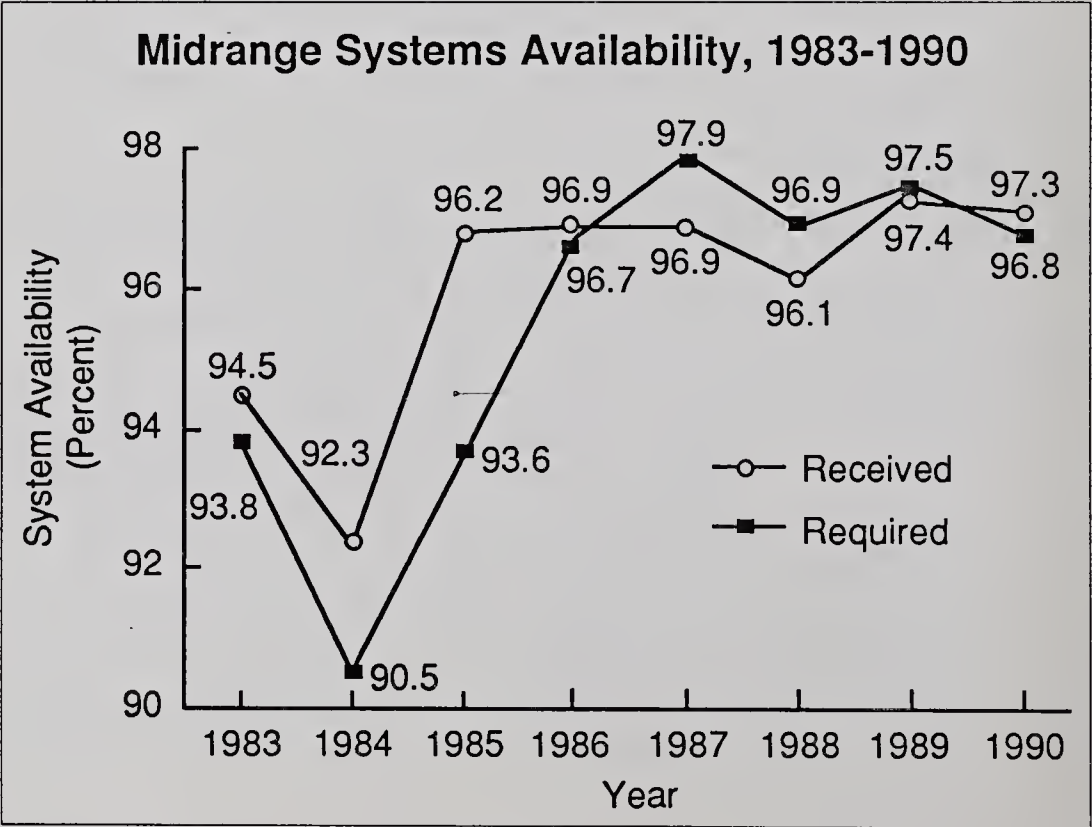
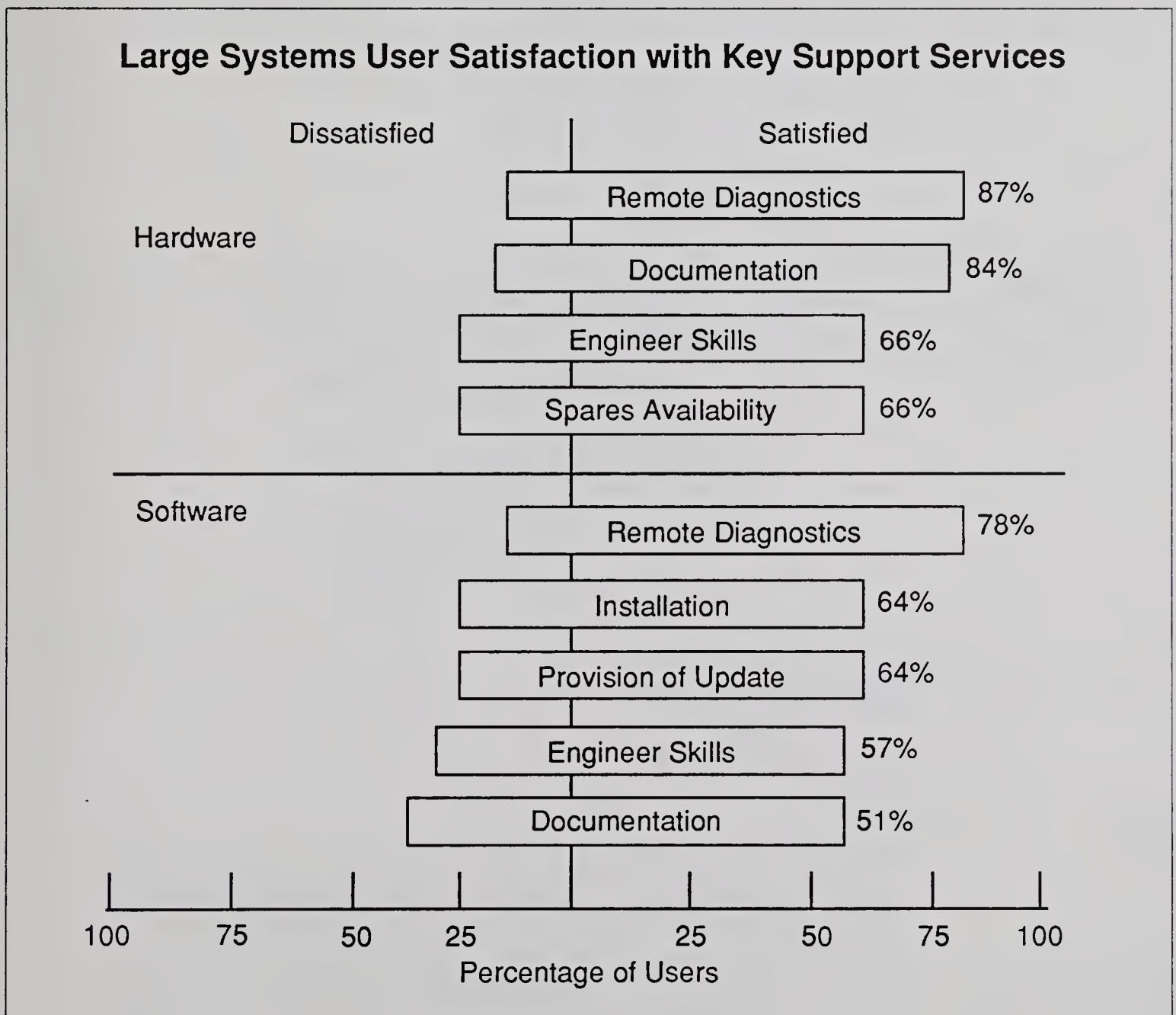


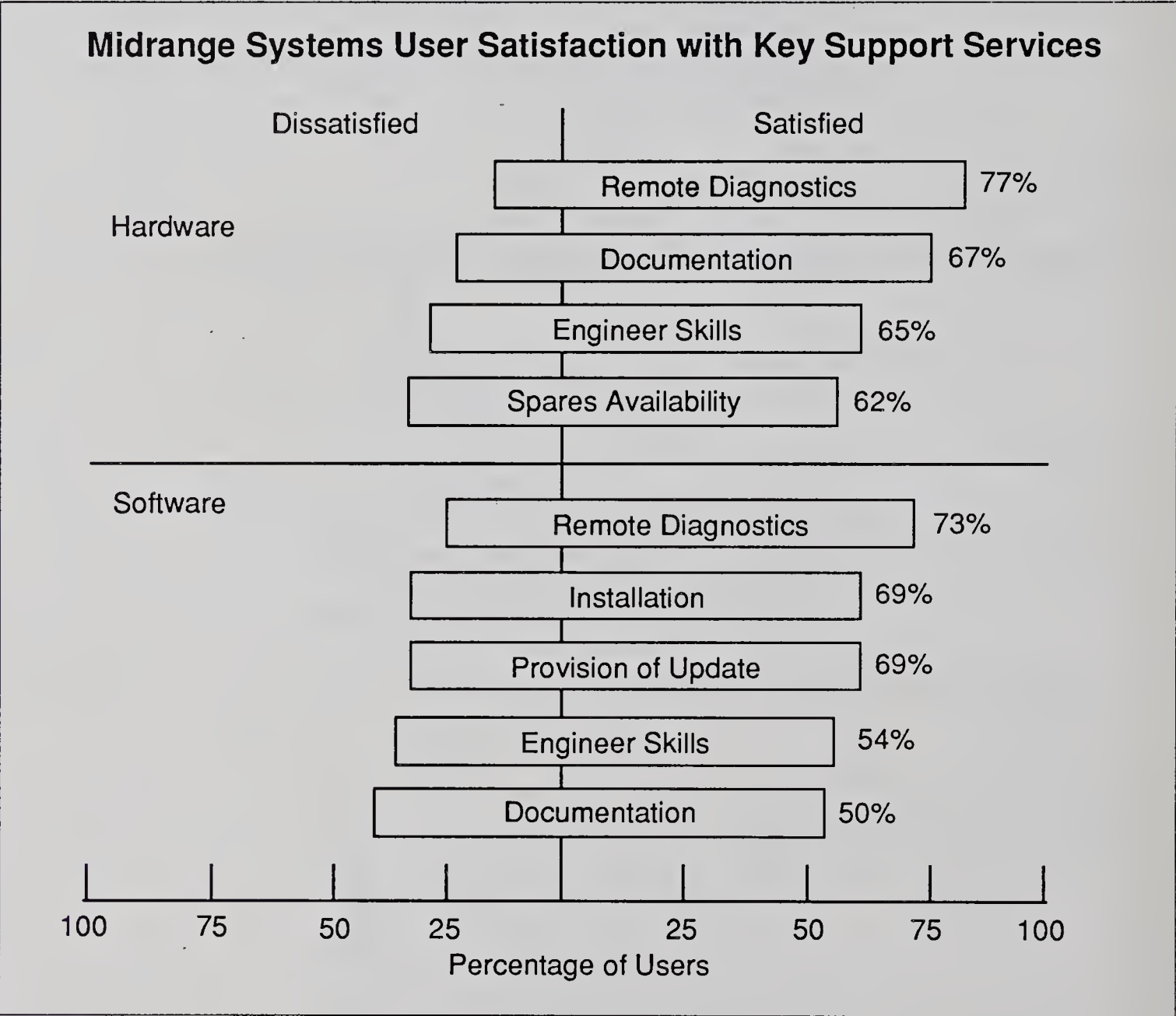
Exhibit IV-5 examines the user satisfaction with key support services for the large system sample. Satisfaction was measured by recording the service required versus the service received and then comparing the two ratings. The user was considered to receive satisfactory service if the vendor met or exceeded the service required rating. Overall, the service vendors exceeded the service requirements for all of the key services, with the percentage of users satisfied ranging from 57% for software engineering skills and software documentation, to 87% for hardware remote diagnostics. Software documentation had the biggest increase in user satisfaction—in the 1989 sample, 37% received satisfactory service, whereas in the 1990 sample, 57% received satisfactory service.

EXHIBIT IV-5



Software documentation is still a problem area for the midrange system sample, as presented in Exhibit IV-6, with only 50% of the users receiving the documentation support they require. Other areas reported higher satisfaction levels than in 1989. The hardware service satisfaction levels were not quite as high as the large systems sample.

EXHIBIT IV-6



Users also find communications with their service vendor about their system very important, as shown in Exhibit IV-7. These communications include regularly discussing the status of the system, possible problems, repair plans, availability of spare parts, scheduled routine visits, and hardware and software changes. Large system users had the highest mean importance, 8.4, as well as the highest mean satisfaction,

8.2. Only in the midrange sample did the mean satisfaction with communications exceed the mean importance of communications with the service vendor. This may indicate a shortfall in the vendor's understanding of service components important to the user.

EXHIBIT IV-7

User-Service Vendor Communications

System	Mean Importance	Mean Satisfaction
Large	8.4	8.2
Midrange	7.6	7.9
PC/Workstation	7.5	6.8
Total Sample	7.9	7.8

Scale: 0 - 10, where 0 = low and 10 = high.

G

Impact of the Recession

A survey of customer services vendors and IMOs revealed only one vendor that did not feel an impact from the recession. Thirty percent felt only negative impacts, and another thirty percent felt both negative and positive impacts, as shown in Exhibit IV-8. Negative impacts mentioned by vendors included:

- Decreases in prospects
- Delays and cancellations of contracts
- Reduced business
- Caution in ordering
- Reduced growth

EXHIBIT IV-8

Impact of the Recession on Vendors and IMOs

Impact	Percentage of Vendors and IMOs
Negative	30
Positive	10
Both	30

Contract delays were the most frequently noted negative impact, mentioned by 40% of vendors/maintenance organizations interviewed. There were positive impacts mentioned as well, however. Thirty percent stated that there were increased inquiries or needs for service possibly related to the economic downturn. These increases may have been caused by companies shopping for alternate services or by greater attention on keeping applications running.

Neither positive nor negative impacts had a very large impact on revenue, under 5% on the average, but 40% of the respondents had instituted cutbacks in personnel and other budget-cutting measures, as shown in Exhibit IV-9.

EXHIBIT IV-9

Budgetary Measures in Relation to Economic Downturn	
Measure	Percentage of Respondents
Personnel Cutbacks	40
Overtime Reduction	10
Hiring Freeze or Lean Staff	30
Reduced or Tighter Budgets and Controls	60
Stronger Justification for Expenses	10
Space Consolidation	10

Fifty percent of respondents also felt that budgets could be further reduced or tightened if the economic situation worsened.

Vertical markets that vendors and IMO's felt were impacted by the recession included banking and finance, the federal government, manufacturing, transportation, insurance, and wholesale and retail distribution. Sixty percent mentioned the federal government as being particularly hard hit. The problems that clients were encountering in these and other industries most frequently were revenues reductions and reduced funding or budgets.

However, 40% of vendors and IMOs felt that customer services were insulated, at least to some extent, from recessions, as shown in Exhibit IV-10.

EXHIBIT IV-10

What Information Service Is Insulated Wholly or Partially from a Recession?

Service	Percentage of Respondents
Customer Service	40*
Network Implementation Support	30*
Not Sure or Do Not Know	30
None	20

*Some respondents mentioned both services.

The last exhibit illustrates the appeal that network support has for providers of customer support.

In reaction to the recession and its impact, 40% of vendors and IMOs are instituting changes in service delivery or are considering such a step. One will expand telephone support, and two of the computer manufacturers offering maintenance services will place more emphasis on customer services.

Sixty percent of vendors and IMOs will change selling methods in reaction to the economic downturn. Forty percent plan steps to increase customer satisfaction or quality of service. Unbundling of services and telemarketing were also mentioned.

Twenty percent of the respondents will repackage the prices for services in reaction to the recession. Another 20% to 30% percent are planning pricing changes that are not in reaction to the downturn.

Overall, more customer services vendors and IMOs have positive than negative attitudes about customer service opportunities during the recession. They are positive about the introduction of additional products/services, as shown in Exhibit IV-11.

EXHIBIT IV-11

New Product Introduction	
Status	Percentage of Respondents
Disposed to Introduce New Products	60
New Products Being Released or Developed	30

H

Expansion into Nontraditional Markets

In many respects, customer service organizations within hardware companies are good vehicles for hardware companies to expand into new service markets. Often, the customer service organization is the only group that combines

- Experience in providing services
- Wide geographic coverage
- Significant incentives to enter new markets

On the other hand, customer service organizations

- May still have a “tool-bag” orientation
- May be inexperienced or unsuccessful at retraining
- May select inappropriate service targets

However, customer service organizations can have competitive advantages, as shown in Exhibit IV-12.

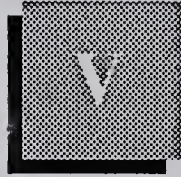
EXHIBIT IV-12

Professional Services Opportunities for Customer Service Organizations: Summary

Professional Services Segment	Opportunity	Comment
Consulting	Fair/good	Depends on specific skills available
Applications Development (New Systems)	Limited	Highly competitive
Applications Support (Existing Systems)	Good	Need project management and some technical skills
Systems Integration	Limited	Enter at later phase
Turnkey	None	Tied too closely to software product offerings
Systems Operations	Good	Competitive situation still fluid



Recommendations and Conclusions



Recommendations and Conclusions

A

The Competitive Environment

As the customer services market becomes based more on the provision of expanded services and quality service, price becomes more of an internal profit and loss problem and less of a competitive tool against competitors. Vendors can no longer compete on the basis of price alone, and users are looking for quality and one-source provision of all of the service required to support their business.

The increased requirement for systems performance puts additional pressure on the service vendor to provide expanded, add-on services to keep the service contract. With the growing base of new computers and networks, pressure is placed on the technical staff to service the many complex combinations of equipment.

B

IBM in the Service Market

As with many of the other vendors in the service market, IBM is reorganizing to deal with the increased pressure to combat the strong bottom-line profit pressure, to provide the wide range of service required by the users, and to contain costs.

Decentralization has for many other companies helped contain the cost of doing business. The move to place the responsibility of customer service in the field with the area managers may help to fight the high overhead of a separate service organization. Service price increases cannot be the only defense providing relief.

IBM has for many years followed the strategy of providing what the customer wants. The decentralization of service may assist in implementing this strategy on a more timely basis by putting the responsibility and control of service offerings in the hands of the local area managers.

It is the ability to improve the quality of provided service that remains to be seen in view of the new reporting structure. IBM's objective has been to provide the best possible service. It will be the challenge of the area

managers to provide the internal resources to get the high caliber of service out to the users.

C

Customer Service as a Business

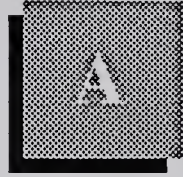
For most of the 1980s, customer service organizations learned to think in business terms, albeit within the context of the traditional customer service business. For example:

- Was customer services a distinct profit center, intent on maximizing its own profitability? Was this a long-term or short-term strategy?
- Was customer service a contributor to a hardware manufacturer's optimum profitability? This might require a sacrifice of customer service's profits in order to maximize a firm's competitive position generally.
- How can the intangible value of service be maximized while keeping costs under control?
- Most customer services organizations have largely mastered their business, as it is narrowly defined. The challenge for the 1990s will be to master a new set of service issues, many of which are unfamiliar.



Software Support





Software Support

EXHIBIT A-1

Software Product and Support Forecast

Software	User Expenditures (\$ Billions)							CAGR (%)
	1989	1990	1991	1992	1993	1994	1995	
Application Total	16.2	18.1	20.4	23.0	26.2	30.1	34.7	14
- Sales	13.4	15.0	16.7	18.9	21.2	24.4	28.1	13
- Support	2.8	3.1	3.7	4.1	5.0	5.7	6.6	16
(Percent)	17	17	18	18	19	19	19	
Systems Total	14.5	16.4	18.4	20.9	23.9	27.4	31.5	14
- Sales	11.6	13.1	14.7	16.7	19.1	21.9	25.2	14
- Support	2.9	3.3	3.7	4.2	4.8	5.5	6.3	14
Total Software	30.7	34.5	38.8	43.9	50.1	57.5	66.2	14
- Sales	25.0	28.1	31.4	35.6	40.3	46.3	53.3	14
- Support	5.7	6.4	7.4	8.3	9.8	11.2	12.9	15

